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PRIVATE SOURCES OF INCOME OF THE SOVIET URBAN HOUSEHOLD.(U)

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Private Sources of Income of the Soviet Urban Household

Gur Ofer, Aaron Vinokur

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Prepared for
DIRECTOR OF NET ASSESSMENT,
OFFICE OF THE SECRETARY OF DEFENSE



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An analysis of the "second economy" in the Soviet Union. The work is based on a survey of family budgets of about 1000 Jewish families who emigrated from the Soviet Union in the early 1970s. The families were asked basically to report on two things: (1) private sources and amounts of family income used to supplement family earnings from the public sector; (2) the amount of goods and services purchased from private sellers. The analysis treats the income side and the purchase side separately. For each, it presents the data for the sample population as is, and then adjusts estimates and projects findings to fit the target (urban) population and some of the macroeconomic national aggregates, such as GNP and total household income.

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PREFACE

This report by Rand consultant Gur Ofer, of the Hebrew University, and his colleague at Haifa University, Aaron Vinokur, attempts to analyze the scale and character of the private sector in the urban economy of the Soviet Union. The analysis is based on a series of survey data compiled by Drs. Ofer and Vinokur from a family budget survey of approximately 1000 Russian émigré families living in Israel.

This study was supported by the Office of Net Assessment in the Office of the Secretary of Defense. The work is of interest and potential importance because of its implications concerning such issues as the real size of the Soviet resource base and the extent to which competition between the civilian and military sectors may be moderated by the "second economy" in the Soviet Union.

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SUMMARY

In its pure form, the Soviet economic system is supposed to be based exclusively on public production, with all means of production owned by the state and all production conducted through its authority. Still, certain "private production" activities have existed, some with full government sanction, some tolerated without explicit approval, and some illegal. This study analyzes the scale and character of such activities, both legal and extralegal, in the USSR urban economy. The purpose is to increase understanding of the real size of the Soviet resource base and the extent to which the "second economy" may moderate competition between the military and civilian economic sectors.

The analysis is based on a survey of family budgets of about 1000 Jewish families who emigrated from the Soviet Union in the early 1970s. The families were asked basically to report on two things: (1) private sources and amounts of family income used to supplement family earnings from the public sector, and (2) the amount of goods and services purchased from private sellers. The analysis reported here treats the income side and the purchase side separately. For each, it presents the data for the sample population as is, and then adjusts estimates and projects findings to fit the target population (the households of European urban USSR) and some of the national macroeconomic aggregates such as GNP and total household income.

The study found that the urban private sector is an important element of the household economy on the income as well as the expenditure side. From 10 to 12 percent of total incomes come from private sources, and some 18 percent of all consumption expenditures are made to private recipients. Hence, while the Soviet citizen depends on the public sector for the bulk of his income and consumption needs, nearly all urban households consider opportunities for private gain or private purchase in decisions affecting work, income, and standard of living.

Private earnings, as an auxiliary and flexible source of income, play an even more important role in family decision processes than their share of total income suggests. Private purchases bridge part

of the gap between the provision of basic needs, as defined by the Soviet planners, and the higher standards and quality of life sought by the household. Statistical evidence is buttressed by anecdotal evidence. The latter is perhaps best summarized by a curse said to have originated in Odessa: "Let him live on his (public) salary alone!"

The possibility of private earnings disrupts performance of the allocative and incentive functions built into the official wage structure and bonus payments. Activities that provide ampler possibilities for private gain may attract more people than the official wage intended, and vice-versa. Where such an activity is a low priority one, purposefully paying a low official wage, the urge for private gain will be reinforced. A large body of evidence suggests that people prefer jobs with private earnings potential in trade, construction, and services. This situation may make it more difficult for the authorities to recruit qualified scientists and skilled workers for military R&D and production enterprises. Such people may prefer work in parallel civilian jobs, because the nature of military production and the secrecy and security measures imposed on it diminish opportunities for private gain.

Although the volume of private activity in the urban consumer sector is significant, its impact on assessment (in the West) of Soviet GNP is modest--at most it adds from 3 to 4 percent to existing estimates.

ACKNOWLEDGMENTS

We would like to thank Gregory Grossman, Abraham Becker, and Robert Shishko for reading earlier drafts and making many valuable comments. Various drafts of this paper were presented at seminars at Rand, the Russian Research Center at Harvard, and elsewhere and we are grateful to the participants who made constructive comments. We would also like to express our appreciation to Reuven Bisk and Helen Wagner for research assistance and computer work, and to Adel Zarmati and Yechiel Bar-Chaim for editing assistance. A full report on the economic situation of the Soviet urban household in the 1970s will appear in a forthcoming book to be published by the Massachusetts Institute of Technology Press.

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SYMBOLS AND ABBREVIATIONS

AF	Aggregated food consumption
APS	Average propensity to spend
BR	Billions of rubles
CFM	Collective farm market
ED	Level of education, measured in years of schooling
EI ₁	Food purchases from different marketing channels
EX	Total expenditures
EXP	Expenditures on food
EW ₁	Dummy variable for extra work
EW ₁	Extra private work
EW ₂	Extra public work
EW ₃	Overtime in the main place of work
FS	Family size
H1	Weekly hours in the main place work
H2	Weekly hours in the public sector
H3	Average weekly hours spent in private jobs
H3/H1	Private work time as a percentage of time spent on the main job
H3/H2	Private work time as a percentage of time spent on work in the public sector
MOS	Dummy variable for Moscow
MR	Millions of rubles
OCCP ₁	Detailed occupations
OCCP _j	Aggregated occupational groups
OI	Other income

PEX	Expenditures on purchases from private agents
PW	Private work
RH	Regular hours: number of weekly hours at the main place of employment without overtime
RSFSR	Russian Soviet Federated Socialist Republic
RW	Regular wages: net monthly earnings at the main place of work without overtime
SP	Sample population
SEX	Dummy variable for being male
TF	Total food consumption
Y	Aggregated income: sum of component income declarations
Y1	Earnings from main job
Y2	Earnings from public sector
Y3	Private wages
Y'	Total income declaration by family head
YCR	Family income (substitutes Y' for Y where Y' > Y and conforms better than Y to total expenditures)
YD1	Family expenditures less income (EX - Y')
YD2	$Y - Y'$
YD3	Unreported income (YCR - Y)
YP	Family earnings from all sources
YR ₁	Monthly family disposable income less RW and earnings from the respective form of extra work (see EW ₁)
UP	Urban population
W1	Monthly net wages from the main place of work
W2	Monthly net wages from all jobs in the public sector
W3	Monthly wages per worker in a defined group, earned from private work
W3/W1	Private wages as a percentage of total wages from the main place of work

W3/W2	Private wages as percentage of total wages from the public sector
W3D	Proportion of all workers in a certain group engaged in private work
WPH1	Wages per hour on the main job
WPH3	Wages per hour on work in the private sector
WPH3/WPH1	Ratio of hourly wages in the private sector to those in the main place of work

I. INTRODUCTION

In its pure form the Soviet economic system is supposed to be based exclusively on public production; all means of production are to be owned by the state and all production conducted through its authority. Nonetheless, since the institution of this public economy in the late 1920s, there have always been certain 'private production' activities. Some have received full government sanction (notably the private plots and the collective farm market); some are tolerated but lack explicit approval; and others are conducted illegally. Even so, private production activity has always been ideologically unacceptable and is therefore viewed as a necessary but temporary compromise. With the growth of the public sector's economic potential on the one side and the socialist education of the population on the other, it was hoped that both the need and the temptation to engage in such activities would decline. Although the relative importance of private farming, the most important legal private production activity, has been declining over time, the final goal still seems to be beyond reach. This is fully recognized by the now famous Article 17 of the new Soviet Constitution, which openly authorizes private labor activity in certain fields.

In such a situation, the loci of private economic activity, whether legal, semilegal, or illegal, can serve to identify weak areas of performance in the public production sector and on the reeducation front. The study of private economic activities can thus provide another dimension to the understanding of the workings of the centrally planned economic system.

WHY STUDY THE "SECOND ECONOMY" IN THE SOVIET UNION?

The inclusion of legal activity in the definition of the private sector makes our concept extend beyond what is usually called an 'underground economy' or 'second economy,' whether in the Soviet Union or elsewhere. But given our concern with extralegal activity here, why single out the Soviet Union when every nation has its second

economy, which in some cases may be even larger than in the Soviet Union?

Studying the underground economy helps to clarify the prevalent economic and social system for any country. For the Soviet Union, special interest in this topic derives from the interaction noted above between the public and private subsystems within a system that is designed and geared to become completely public. It is for this reason that legal as well as extralegal private activity is included here, as it would not be in a study of the 'underground economy' alone.

Determining the size of the Soviet private economy is also important to the study of excess demand or repressed inflation in the consumer goods sector. Pressures created by imbalances between the wage bill and the 'consumption bill' (all consumer goods and services produced in the public sector valued at official prices) may be directed into the private sector.

Moreover, as in many other countries the exclusion of certain private activities may distort estimates of national aggregates such as GNP and private consumption, as well as the structural patterns of the economy such as the ratio of consumption to investment (or defense) and the industrial structure. To cite one example, the cross-section saving function in the Soviet Union is influenced significantly by the existence of private incomes. (Ofer and Pickersgill 1980.)

ESTIMATING THE SIZE OF THE SECOND ECONOMY

By its nature, private economic activity defies accurate recording in official statistics. Much of what is illegal under Soviet law is not included in the relevant statistical categories. Further, to avoid taxation or exposure, a large proportion of private legal activities is probably not reported to the authorities. In some cases (such as the volume of sales and prices in collective farm markets), the information is gathered by a sampling method (not direct reporting) which leaves room for doubt. As a result, no published Soviet official estimate of the size of the private sector exists, nor is there a full reckoning of this sector in the system of national accounts. While not easy in any country, estimating the size of the underground

economy is much more difficult for students of the Soviet Union living in the West. The double curtain of secrecy concealing information on the private sector within the Soviet Union lends added mystery to the phenomenon. The secrecy is responsible for the wide variation of current estimates, ranging from a few percentage points to some 40 percent of GNP, or at least of consumption. The implications of accepting either the minimum or the maximum estimates are very significant for our understanding of the Soviet economy.

OTHER STUDIES OF THE PRIVATE SECTOR

Many studies on the private sector of the Soviet economy have appeared in the West during the past few years. These range from personal views of encounter or experience with private activities in the Soviet Union to methodological and theoretical papers on the definition, scope, and legal aspects of private activity in an attempt to estimate the level of these activities and their effect on the economic aggregate.*

NATURE AND PURPOSE OF THIS STUDY

The main purpose and contribution of this paper is to provide a comprehensive quantitative estimate of the extent, level, and pattern of private economic activity in the Soviet urban sector and of its effect on the size of the major economic aggregates. The estimates are based on a detailed survey of family budgets of Jewish families who emigrated from the Soviet Union as explained below. While dealing in passing with some aspects of many of the published studies, the present report concentrates on analyzing the detailed quantitative evidence made available through this family budget study.

Specifically, this report economizes on discussing definitions and methodological questions and refers the reader to the works

* Some of the more recent works are Chalidze (1977), Grossman (1977 and 1979), Kaiser (1976), Katzenelinboigen (1977), Katz (1973), Schroeder (1977), Severin and Carey (1970), Simes (1975), Smith (1976), Trembl (1975), Schroeder and Greenslade (1979) and Ofer (1979).

mentioned above for comparable, supporting, or contradictory evidence.* Nonetheless, a few brief statements on the working definition of the private sector and on some measurement problems are warranted.

DEFINITION OF THE PRIVATE SECTOR

The private sector is defined here to include all production activity on private account, including transactions performed outside the accounts of a public enterprise or institution, whether legal or illegal. It includes pure private production or provision of services and also the use of public property, materials, equipment, and paid work to provide goods or services to private people for private gain.

The convention in the West is to omit all illegal activities from the national accounts. Had we done so with respect to the private sector in the Soviet Union, a significant portion of such activities would have been excluded, some of which, while strictly illegal, appear to be quite common. On both theoretical and practical grounds, we decided, therefore, to include in our estimate all activities classified in the Soviet context as economic crimes against the state or the public sector, in distinction to other criminal acts. In principle, we should include, say, employee theft from a government store but exclude burglary. The distinction may not be that sharp, but the intention ought to be clear. In practice, we include any income reported as earned privately, recognizing the limitations of our data (see below).

SOURCE OF DATA

The source of data for the study is a survey of family budgets of 1016 Jewish families who emigrated from the Soviet Union in the early 1970s. By questionnaire, the families were asked to identify private sources of income in addition to their earnings from the public sector. They were also requested to report on purchases from private sellers of goods and services.

* Some of the methodological issues are treated in greater detail in Schroeder and Greenslade (1979) and Ofer (1979).

DATA LIMITATIONS

Although this is the most extensive family budget survey of Soviet families that has become available to students of Soviet economy in the West, it has a number of obvious limitations, some general and others acting to directly constrain the study of the private sector and qualify its findings. Because the main features and limitations of the survey are described elsewhere^{*}, a brief summary should suffice here.

As stated, the data come from returns of a retrospective family budget survey of 1016 Jewish families. The families reported in great detail on their earnings and income by sources, and on their expenditures during the last year of normal life in the Soviet Union; that is, the year before they decided to emigrate or applied for an exit visa. The interviews were performed during the second half of 1976, and the reports are distributed roughly evenly between 1972, 1973, and 1974, with only a small number referring to earlier or later years.

One obvious weakness of the data is that they consist of recollections that are approximately three years old. Even so, with economic matters being of prime concern to Soviet citizens and economic realities (income, prices) remaining fairly constant over time, this may not be as big a handicap as may be assumed by outsiders who base their judgments on personal experiences.

In addition to problems caused by poor memory, there is also the risk, specifically significant to this study, that responses concerning semilegal or illegal activity will not be accurate. As illustrated below, we tried to be as sensitive as possible in asking questions on private activities, sometimes at the cost of precision and accuracy. Although there are cases of both over- and under-reporting, our belief is that the latter predominates. As a result, the estimates derived here are on the low side.

Furthermore, it should be noted that the group of families interviewed is not representative of the Soviet population in three major ways, all of which affect the study of the private sector: (1) The sample is intentionally limited to certain parts of the Soviet

^{*}Ofer, Vinokur and Bar-Chaim (1979).

population; (2) it is composed exclusively of Jewish emigrant families; and (3) even if this factor is overlooked, the sample is structurally different from the segment of Soviet population that it is supposed to represent. Each one of these sources of bias can now be examined in detail.

SOURCES OF BIAS

The sample is limited to households from the urban population (few emigrants come from rural areas) of European USSR only. It is further limited to two-parent families whose male head was still active in the labor force during the reporting year. These restrictions have a number of implications for the study of the private sector: First, private economic activities that take place within the production sector, between enterprises, and in the rural sector are excluded. Transactions on private account between the public production sector or the rural sector on the one hand and the urban household sector on the other, are, of course, recorded, but only from the side of the urban sector. Thus, the unauthorized transfer of goods from public sector enterprises to households are recorded as part of the urban household sector's income, not as a proportion of the public production sector's cost. Similarly, we have data on purchases of food in collective farm markets but not on their sales. The exclusion of private agricultural production is not too serious as this field is more or less covered by both Soviet and Western studies (although, as we shall see, this private production may also be problematic). But we totally lack an account of nonagricultural private activities in rural areas whose level and structure differ from those in urban areas.

Since the survey does not cover families from the central Asian republics, it omits some of the more colorful, imaginative, and pervasive areas of private activity in the Soviet Union, a serious loss for any study of the Soviet private sector. In this respect it should be stated that the study of the private sector is only one of the survey's ultimate goals, and that the central Asian republics were excluded to raise the overall level of conformity and reliability.

The bias created by excluding single people, one-parent families, and families on pension may vary in direction depending on which aspect

of the private sector is investigated. Most of the groups excluded would appear to be those that engage more actively in private activities than the remaining working urban population, so that on this basis any macroeconomic estimate derived would be understated. Recognizing these exclusions, we define our 'target population' as the households of European urban USSR, and discuss further biases in reference to it.

The second major source of bias is that the sample is made up exclusively of Jewish emigrant families. This characteristic may affect the structure of the sample and create sample biases (i.e. overrepresentation of doctors) that fall under the third source of bias discussed below. These can be taken into account by reweighting. But there may be intrinsic Jewish and emigrant biases that affect the behavior of the entire sample in ways different from the target population. And in that case the direction and extent of any such biases cannot be determined without access to independent information. With the exception of a number of more or less direct allegations in the antisemitic literature, there is no basis to judge the extent of such biases or whether they exist at all. Hypothetical arguments can go both ways. It may be claimed that, in some places, the Jewish community in the Soviet Union forms a closed group that is more capable of concealing private activities from the authorities. On the other hand, it may be claimed that being more vulnerable to persecution, Jews would tend to avoid undertakings that may lead to reprisal.

As for a possible emigration bias, it should first be reemphasized that the responses referred to a 'normal' period before the decision to emigrate was made. But emigrants are assumed to be among those who are more dissatisfied with the country they are leaving and who constitute the more daring, less conservative segment of the population. Both characteristics may indicate higher levels of private activity while in the Soviet Union, but such an hypothesis cannot be measured as long as we lack data for a control group of Soviet citizens who did not emigrate. Let us only point out that the case of Jewish emigration from the Soviet Union to Israel contains at least some element of pull, not only push, and is at least partly motivated by factors

outside the realm of regular immigration movements. This may mute some of the biases if they are there.

Finally there are ordinary sample biases that result from the structure of the population from which the sample was drawn and the sampling technique. The sample was not selected randomly and was not prestructured except that an attempt was made to approach an occupational structure that was close to that of the target population. As it turned out, the sample overrepresents the Baltic and Western republics of the Soviet Union, underrepresents the Russian Soviet Federated Socialist Republic (RSFSR) and overrepresents larger cities as opposed to smaller ones. Demographically, the sample is similar to the Soviet urban population but it differs significantly with respect to economic characteristics. The sample is made up of roughly two-thirds white-collar workers and one-third blue-collar workers--almost exactly the opposite proportion of the target Soviet population. Similarly, the average levels of education, earnings, and family income--all of which may affect the levels of private activity--are considerably higher.

In contrast with the Jewish bias of the sample, most of the structural biases can be corrected either by reweighting the sample data by the relevant structural weights of the target population (i.e., if medical doctors are more active in private work and they are overrepresented in the sample, a reweighting by their proper weight in the target population will correct this kind of bias), or through the use of statistical techniques that are insensitive to such biases (such as least squares analysis under the assumption of homoscedasticity). It may be worth mentioning that many of the presumed sources of the Jewish bias may be structural (there are more Jewish doctors) than intrinsic (Jewish doctors engage more in private activity) and if so can be minimized by reweighting.

SEQUENCE PROBLEMS

The present report suffers to some extent from the sequence we have followed in studying the survey's results. The study of the private sector should come only after major patterns of household behavior

with respect to the public sector have been examined. Against such a background, the specific features of private activities can be better delineated and analyzed. Whenever possible, the major features of public sector behavior have been studied, but the whole picture is far from complete, especially on the expenditure side. It would be useful to reevaluate and supplement the results presented here on the basis of a much more thorough analysis of the general pattern of household economic behavior.

STRUCTURING THE REPORT

This analysis is divided into two major parts. The first deals with sources of private earnings and incomes, the second with purchases from private sources. In both parts we first present the data for the sample population as it is and then adjust the estimate and project the findings to fit the target population and the macroeconomic national aggregates.

II. PRIVATE SECTOR EARNINGS AND INCOME

A. THE SURVEY EVIDENCE

The survey estimates income derived from four different private sources: private work, subsidiary farm, rents, and 'other' sources deliberately not specified in order to bring in, with minimum embarrassment, all legally questionable nonwork income.* The unspecified source of income may thus include 'tips' to public officials, the value of goods taken without permission from the public domain for private use or resale, and possibly wages or quasi-wages not reported as private work.† Nevertheless, for obvious reasons, income from private sources is likely to be underreported. An attempt to estimate unreported private income is made at the end of this section.

Although income from private work, private agricultural plots, and rented apartments or rooms can be legal, it actually becomes so only if reported or registered and the appropriate special taxes paid. These regulations are commonly disregarded, however, to evade tax payments, avoid public exposure, or conceal the use of illegally acquired tools or materials. The questionnaire did not distinguish between legal and illegal activities. As we pointed out in the Introduction, this distinction is neither very clear nor important in the Soviet context.

1. Private Wages

Table 1 presents a breakdown of the working habits of the Sample Population (SP), by the extent of work and sector and by sex. Of the entire adult population of 2,520, 2,146 were working, 173 of which (8.1 percent) were engaged in private work of one kind or another. Several significant observations on the incidence of private work can be made from the table.

* Money received from relatives as gifts or loans was treated separately in the questionnaire.

† A plumber performing a repair for private pay during regular working hours may decide to include such income here.

Table 1
ADULT POPULATION BY WORKING STATUS AND EXTRA WORK

	Men	Women	Total
1. All adults	1209	1311	2520
1a. Nonworking	82 ^a	292 ^b	374
2. Working	1127	1019	2146
2a. Part-time	11 ^c	26 ^d	37
3. Working full-time	1116	989	2105
4. Working privately	122	51	173
4a. Only privately	0	4	4
4b. Part-time in public sector	1	4	5
4c. Full-time in public sector	121	43	164
4c.i. Additional work only in private sector	79	32	111
4c.ii. Additional work in both private and public sectors	30	3	33
4c.iii. Additional private work and overtime ^e	9	5	14
4c.iv. Additional private and public work plus overtime	3	3	6
5. Those working full-time with additional public jobs	140	36	176
5a. In addition to just overtime	11	1	12
5b. In addition to overtime and private work	3	3	6
6. All those with full-time jobs working overtime	65	50	115
7. All those with full-time jobs engaged in extra work	270	114	384

^aFive are family heads

^b118 are wives of family heads

^cSix are family heads

^d23 are wives of which 4 are working only privately

^eOvertime accounts for all cases of more than a full-time job in the main place of public employment.

First, private work appears largely as a supplement to rather than a substitute for a full-time job in the public sector. Only four women held only private jobs and only five people, four of them women, who worked privately, held only a part-time job in the public sector. All but one of the men and 84.3 percent of the women who work privately were also fully employed in the public sector. The presumption that women might have resorted to private employment as the only way to get a part-time job is not supported by the data. Indeed, 22 out of 26 women who work part-time found such jobs in the public sector.

Second, while there are opportunities to work more than full-time in the public sector, even here private work serves, at least for some people, as a supplement rather than as a substitute. As can be seen from the table, 115 people work overtime^{*} in their main place of work (line 6) and 176 people engage in additional public jobs (line 5); 19 percent (33 people) of those who hold extra public jobs and 17 percent (20 people) of those working overtime are also privately employed, both proportions being higher than the incidence of any kind of extra work in the entire population. This indicates a *positive* gross association between additional public and private jobs rather than a negative one, which would be called for if these two types of employment were real substitutes for each other.[†] This gross association may result from demand or supply conditions conducive to extra work for specific groups of workers in both the public and the private sectors. However, most people who seek or have the opportunity to engage in extra work choose only one of the three forms available.

Finally, men are much more active than women in private work: 122 men (10.8 percent of those working) but only 51 women (5.0 percent) had such jobs. Correspondingly, more women who work privately work part-time, and fewer of them, only 11 as compared with 42 men (lines 4c.ii, 4c.iii, 4c.iv), are engaged in other forms of extra work. This

^{*}Including overtime as well as extra part-time jobs in the main place of work. Such extra jobs are held by medical staff, teachers, and others.

[†]The simple correlation between private work and extra public jobs is 0.156 and with overtime 0.088. There may be, of course, negative association on the margin or within specific groups of workers.

reflects the overall lower involvement of women in extra work (line 7). The main explanation for these differences between the sexes seems to lie in the very high rate of participation of women in the active work force. At 78 percent (lines 1, 2), the rate is lower than for men (93 percent) but much above the rates for women in any market economy. Faced with both need and social pressure to work and with a heavy load of household chores to fulfill, it is surprising that even 5 percent of the working women do engage in extra private work.

In what follows we trace the extent and significance of private work in the various sectors of the Soviet economy. The variables used to measure the size and importance of private work are:

- W3D - The proportion of all workers in a certain group engaged in private work.
- W3 - Monthly wages per worker, in a defined group, earned from private work.
- H3 - Average weekly hours spent in private jobs.
- W1, W2 - Monthly net wages from the main place of work and from all jobs in the public sector, respectively.
- H1, H2 - Weekly hours in the main place of work and in the public sector, respectively.
- W3/W1, W3/W2 - Private wages as a percentage of total wages from the main place of work and of total wages received from the public sector, respectively.
- H3/H1, H3/H2 - Private work time as a percentage of time spent on the main job and on work in the public sector, respectively.
- WPH1, WPH3 - Wages per hour on the main job and private sector, respectively.
- WPH3/WPH1 - Ratio of hourly wages in the private sector to those in the main place of work.

The analysis is carried out for two groups: the privately employed and the entire working population. In the first we focus on the effect of private activities on the families involved; in the second we emphasize the differential effect of private work on various segments of the economy.

The average private work characteristics for these two groups are presented in Table 2 for the two sexes.

People who are privately employed earn on the average 109.8 rubles per month (net) from private work, an addition of about 78 percent to their wages and salaries from public jobs or some 44 percent of their total wage earnings (Panel A). They spend 10 hours a week working privately, an added one-third or more above the time they spend in their main job. Private work is thus of major economic significance to those engaged in it, and any conclusion drawn on their economic position or behavior based solely upon their public work and earnings would be completely misleading.

The rate of pay per hour in the private sector is 3.10 rubles close to four times higher than the average rate in the public sector. This wide difference reflects the inadequate supply of needed goods and services by the public sector, a risk premium, and a rental charge for the use of facilities and tools.*

But even when proceeds from private work are averaged out across the entire labor force, they remain quite significant (Panel B): private earnings add 8.9 rubles, 5 percent, to the average (net) public wage of *every* worker. Every worker spends, on the average, 0.8 hours, 2.6 percent above regular weekly hours, on private activities.

Table 2 also reveals additional findings on the lower level of involvement of women in private work (PW). As can be seen by comparing the two parts of the table, this lesser involvement of women is manifest primarily in lower participation of women in PW, and, to a lesser extent, in lower levels of activity for those who do participate. Thus, although only 5 percent of the working women do PW as compared with 11 percent of the men, women who work privately spend 8.6 hours, only 2.1 hours a week less than men, on such jobs.†

* More data on hours and earnings of those privately employed in various occupations is contained in Table 5 (p. 24 below), and will be discussed later.

† Relative to regular hours of women in the public jobs, who spend proportionally as much additional time on private jobs as men do.

Table 2
PRIVATE WORK: INCIDENCE, WAGES, AND HOURS, BY SEX

	A. Working Privately ^a			B. Entire Working Population		
	All	Male	Female	All	Male	Female
1. Number of workers	173 (159)	122 (112)	51 (47)	2146	1127	1019
2. W3D (%)	100	100	100	8.1	10.8	5.0
3. W3 (rubles per month)	109.8	127.6	67.4	8.9	13.8	3.4
4. H3 (hours per week)	10.1	10.7	8.6	0.8	1.1	0.5
5. W3/W1 (%)	80.8	87.5	64.8	6.5	9.6	3.0
6. W3/W2 (%)	77.8	83.7	63.7	6.2	9.1	2.9
7. H3/H1 (%)	34.8	34.2	36.3	2.6	3.5	1.7
8. WPH3 (rubles per hour)	3.1	3.3	2.4	--	--	--
9. WPH3/WPH1 (ratio)	3.7	3.9	3.2	--	--	--
10. W1 (rubles per month)	150.9	165.6	115.8	152.1	184.0	117.0
11. H1 (hours per week)	38.8	40.3	35.3	40.3	41.6	38.9
12. WPH1 (rubles per hour)	1.0	1.0	0.9	0.9	1.1	0.7

^aThe figures for those employed privately are based on only 159 workers (112 men and 47 women). Excluded from this analysis are individuals who do not hold full-time jobs in the public sector (1 man and 4 women), who did not report on hours worked in the private sector (6 men), and three men whose reported wage per hour either exceeded 20 rubles or fell below 40 kopecks.

Women's earnings from PW are significantly lower than those of men: 67.4 rubles as compared with 127.6 rubles per month. This is a combined result of somewhat lower PW premiums for women over public wage rates, and of significantly lower public wage rates for women as compared with those for men.*

All these factors contribute to the much lower significance of PW for all women workers as compared with men (Panel B): PW adds on the average only 3.4 rubles to women's net monthly earnings, a mere 3 percent increment, as compared to 13.8 rubles per month, 9.1 percent, in public earnings of men. Women spend only one-half hour weekly on PW, only 1.7 percent above regular working hours, as compared to a full hour, 3.5 percent, in the work effort of the entire male labor force (Panel B). Men who do PW add 127.6 rubles, 83.7 percent, to their public earnings. Clearly, PW becomes at least as important for these men as their official jobs.

Although PW is spread among all types of workers classified by any relevant criterion, it is obvious that some groups are more deeply involved than others. In what follows we sketch the pattern of differential participation in PW of various groups of workers to determine the reasons behind these patterns. The analysis is carried out first for the entire labor force.

Highly significant differences in PW levels are observed, in addition to sex, between blue- and white-collar workers, between workers in different branches of the economy, between different professional groups, and to some extent between residents of cities of different sizes. No significant differences are observed on the basis of age, family size, education, and republic. A description of the differences by branch and sex are presented in Table 3 and by occupation and sex in Table 4. The main results are described below.

* Average net monthly wages from the main job are 183.95 rubles for men and 116.95 rubles for women. When corrected for hours worked, the wage ratio of women to men goes up from 0.64 to 0.67.

Table 3

PRIVATE WORK BY BRANCH OF THE ECONOMY: ALL WORKERS (SAMPLE RETURNS)

		Number of Workers	W3D (%)	W3D (rubles)	W3/W1 ^e (%)	W3/W2 ^e (%)	W1 (rubles)
Manufacturing	Total	649	4.3	3.6	2.6	2.5	165.5
	Men	390	6.2	5.3	3.9	3.7	190.0
	Women	259	1.5	0.9	0.7	0.7	128.7
Agriculture ^a	Total	43	7.0	5.7	3.4	3.1	149.9
	Men	28	10.7	8.8	5.2	4.7	168.6
	Women	15	0.0	0.0	0.0	0.0	115.1
Transportation	Total	87	9.2	14.3	7.6	7.5	163.6
	Men	71	11.3	17.5	9.3	9.2	177.7
	Women	16	0.0	0.0	0.0	0.0	101.4
Construction	Total	153	7.8	8.5	4.3	3.8	186.4
	Men	118	10.2	11.1	5.5	5.0	199.4
	Women	35	0.0	0.0	0.0	0.0	142.3
Trade and public catering	Total	200	2.0	1.4	1.2	1.0	130.6
	Men	94	4.3	2.9	2.5	2.1	160.6
	Women	106	0.0	0.0	0.0	0.0	104.1
Communal services ^b	Total	232	19.0	24.4	17.2	17.0	140.7
	Men	139	23.1	32.4	21.9	21.7	161.8
	Women	93	11.8	12.4	10.2	9.9	109.2
Health services	Total	266	9.4	14.2	12.0	11.7	128.9
	Men	77	19.5	40.5	31.3	30.3	171.5
	Women	189	5.3	3.5	4.1	4.1	111.5
Education, science and culture ^c	Total	435	11.0	9.6	7.6	6.9	153.4
	Men	187	12.3	14.7	11.6	10.1	202.4
	Women	248	10.1	5.7	4.6	4.5	116.4
Public administration ^d	Total	81	1.2	0.4	0.3	0.3	124.7
	Men	23	0.0	0.0	0.0	0.0	162.1
	Women	58	1.7	0.5	0.5	0.5	109.8

^aOnly 43 of SP worked in agriculture. Living in cities, they do not represent in any way the Soviet agricultural population.

^bIncluding services to housing, repair, and personal services.

^cIncluding also art.

^dAlso including banking and communications.

^eComputed as averages of individual responses, not as the quotient of table entries for W_3 divided by W_1 (or W_2).

High levels of PW participation (W3D) are observed among workers in the branches of Housing and Communal services, where 19.0 percent of all workers (23.1 percent of all men) participate in PW; in Education and Culture, where the corresponding figures are 11.0 and 12.3 percent; and in Health services (mainly for men) 9.4 and 19.5

Table 4a
PRIVATE WORK BY OCCUPATION: * WORKERS
(All Employed: Sample Returns)

	Number of Workers (sample)	W3D (%)	W3 (rubles)	W3/W1 ^a (%)	W3/W2 ^a (%)	H3 (hours per week)	WPH3 ^b (rubles per hour)	WPH3/WPH1 ^{a,b} (ratio)	W1 (rubles)
All workers (blue-collar)	All	615	11.2	14.8	10.2	10.0	1.4	3.1	142.9
	Men	419	14.3	19.7	13.2	12.9	1.7	3.2	162.5
	Women	196	4.6	4.4	3.9	3.8	0.7	2.8	101.0
Manufacturing (machine building and other heavy industry)	All	187	7.5	7.0	5.9	5.6	0.5	3.1	161.9
	Men	172	8.1	7.7	6.4	6.1	0.6	3.1	166.5
	Women	15	--	--	--	--	--	--	109.1
Manufacturing (wood, textile, clothing, shoes)	All	122	15.6	25.3	18.1	18.1	2.6	2.8	139.1
	Men	70	21.4	36.1	26.8	26.8	1.2	2.3	159.2
	Women	52	7.7	10.7	6.4	6.4	3.7	5.4	112.1
Manufacturing (others)	All	51	2.0	3.1	2.2	2.2	--	--	129.2
	Men	31	3.2	5.2	3.7	3.7	--	--	142.0
	Women	20	--	--	--	--	--	--	109.3
Construction and construction materials	All	28	50.0	71.1	38.8	36.9	6.6	2.9	186.9
	Men	27	51.9	73.7	40.3	38.3	6.9	2.9	188.4
	Women	1	--	--	--	--	--	--	145.0
Transportation	All	46	13.0	21.3	12.0	11.7	1.1	6.5	185.0
	Men	43	14.0	22.8	12.8	12.6	1.1	6.5	192.2
	Women	3	--	--	--	--	--	--	82.3
Trade and business services	All	110	0.9	0.9	0.6	0.6	0.2	0.9	104.1
	Men	37	2.7	2.7	1.9	1.9	0.7	0.9	124.0
	Women	73	--	--	--	--	--	--	94.0
Communal services	All	71	19.7	20.9	16.0	15.9	2.4	2.7	124.8
	Men	39	23.1	30.3	18.2	18.2	2.0	3.5	153.9
	Women	32	15.6	9.5	13.4	13.0	2.6	1.3	90.5

Table 4b
PRIVATE WORK BY OCCUPATION: * EMPLOYEES
(All Employed: Sample Returns)

	Number of Workers (sample)	W3D (%)	W3 (rubles)	W3/W1 ^a (%)	W3/W2 ^a (%)	H3 (hours per week)	WPH3 ^b (rubles per hour)	WPH3/WPH1 ^{a,b} (ratio)	W1 (rubles)
All employees (white-collar)	All	1531	6.8	6.5	5.0	4.7	0.56	3.7	155.8
	Men	708	8.8	10.3	7.5	6.9	0.72	4.1	196.7
	Women	823	5.1	3.2	2.8	2.7	0.42	3.0	120.7
Engineers	All	434	6.5	4.2	3.0	2.8	0.44	2.5	188.4
	Men	299	7.7	5.3	3.8	3.6	0.51	2.7	208.5
	Women	135	3.7	1.6	1.1	1.1	0.30	2.0	143.9
Technicians	All	158	1.9	2.9	1.4	1.4	0.21	2.9	142.6
	Men	82	2.4	3.7	1.5	1.5	0.28	3.3	173.3
	Women	76	1.3	2.0	1.2	1.2	0.13	3.6	109.6
Medical employees	All	228	11.4	16.9	14.2	13.8	1.05	4.1	128.4
	Men	61	21.3	47.1	36.4	35.4	2.49	5.3	164.5
	Women	167	7.8	5.9	6.0	6.0	0.53	2.8	115.2
Education employees	All	373	10.7	8.0	6.5	5.7	0.88	2.6	161.0
	Men	157	12.1	11.3	9.1	7.4	0.94	2.2	217.4
	Women	216	9.7	5.6	4.6	4.5	0.84	3.1	120.0
Planners or administrators	All	236	1.3	0.7	0.5	0.3	0.09	0.8	129.5
	Men	49	2.0	2.0	1.1	0.6	--	--	180.2
	Women	187	1.1	0.4	0.3	0.2	0.12	0.8	116.2
Trade employees	All	83	2.4	1.5	1.0	0.7	0.14	0.5	144.1
	Men	48	4.2	2.5	1.8	1.2	0.25	0.5	167.5
	Women	35	--	--	--	--	--	--	112.1
Communal services	All	19	10.5	26.3	14.2	14.2	1.32	5.4	128.4
	Men	12	16.7	41.7	22.4	22.4	2.08	5.4	137.8
	Women	7	--	--	--	--	--	--	112.3

Table 4c
PRIVATE WORK BY OCCUPATION: * MEDICAL PROFESSION
(All Employed: Sample Returns)

		Number of Workers (sample)	W3D (%)	W3 (rubles)	W3/W1 ^a (%)	W3/W2 ^a (%)	H3 (hours per week)	WPH3 ^b (rubles per hour)	WPH3/WPH1 ^{a,b} (ratio)	W1 (rubles)
Doctors	All	102	5.9	8.6	4.8	4.3	0.49	4.6	5.4	169.4
	Men	37	10.8	21.6	11.6	10.7	1.03	5.8	7.1	196.9
	Women	65	3.1	1.2	0.9	0.7	0.18	2.3	2.0	153.8
Dentists	All	23	39.1	96.5	88.1	88.1	4.96	5.7	8.6	111.7
	Men	13	53.9	147.7	127.3	127.3	7.77	5.6	7.6	123.5
	Women	10	20.0	30.0	37.2	37.2	1.30	6.3	11.8	96.2
Nurses	All	65	13.9	6.5	7.3	7.3	0.86	2.1	4.0	87.6
	Men	4	25.0	17.5	13.5	13.5	0.75	5.4	7.4	86.2
	Women	61	13.1	5.8	6.9	6.9	0.87	1.7	3.6	109.5
Others	All	38	5.3	8.7	6.3	5.6	0.53	3.8	4.9	98.2
	Men	7	14.3	11.4	11.8	8.1	1.43	1.9	3.4	100.4
	Women	31	3.2	8.1	5.0	5.0	0.32	5.8	6.4	97.7

*For brevity some of the occupations sound like branches; they nevertheless mean occupation. Thus, 'manufacturing' means 'industrial workers' in any branch, etc.

^aSee note e of Table 3.

^bCalculation based on returns of only those who are privately employed. For number of observations, see Table 5. See also notes in Table 3.

percent.* More or less average rates are observed in the branches of Science, Construction and Transportation; low rates of private participation are found in Manufacturing--4.3 percent over all and 6.2 percent for men; and very low rates are found in Trade and Public Catering--2.0 and 4.3 percent--and in Public Administration--1.2 percent over all and none among men.

The levels of the other variables, private earnings (W3) and relative private earnings (W3/W2), are highly influenced by the private participation rates and thus follow the same *general* pattern. The following figures are especially interesting: men working in Communal services make *on the average* (i.e., including those who do not perform PW) close to 32.5 rubles a month in PW, thus adding almost 22 percent to their earnings from public jobs; the corresponding figures for men in the Health services are 40.5 rubles and 31.3 percent. The high degree of variance among branches is underlined by comparing these figures with the corresponding 2.9 rubles per month, 2.5 percent of public earnings on average, for an employee of the trade industry and even lower for those in public administration.

These findings make it clear that the data on wage differentials by branch of the economy published in Soviet official sources need to be adjusted.

A more detailed picture is presented in Table 4 when differences in the level of PW variables by occupation are presented. In many cases, it is the occupation rather than the branch of employment that determines the propensity to participate in PW. The table is made up of three parts, one for blue-collar workers, one for white collar workers, and a finer breakdown of employees in the medical professions.[†]

*The overall proportion in this branch is low as a result of the high proportion of women employed.

[†]The breakdown by occupation is different from that by branch in that the latter classifies according to place of work; i.e., a construction worker employed in the branch of Health services is classified in different groups according to the two classifications. However, the available classification by occupations is much more detailed than that by branch, and at least for blue-collar workers within manufacturing could be observed as a proxy for an industrial classification.

Concentrating first on W3D, we observe that workers are more inclined to engage in PW than employees, and that this average finding results exclusively from higher rates for men workers (14.3 percent) than for men employees (8.8 percent). The W3D rates for women of the two groups are very similar, just around 5 percent. The private wage differentials between workers and employees, again for men, are even wider: men workers make 19.7 rubles per month in PW, adding 12.9 percent to their public-job (W2) salaries while employees add only 10.3 rubles or 6.9 percent. Correspondingly, blue-collar workers spend more time in private work than white-collar employees. There are narrower differences between the two groups when hourly wages in private work and ratios of private to public wage rates are considered. Private hourly rates for all those privately employed are quite similar, only those for women workers being much lower. Relative private hourly rates, however, are similar throughout, close to four times the public rate.* It must be emphasized that all the comparisons of workers with employees as groups, as are in fact all other aggregated comparisons, are based on the occupational structure of workers and employees in the sample and not of the Soviet urban labor force. Therefore, all conclusions will be modified following reweighting according to the structure of the latter.

Among *blue-collar* workers we find a dichotomous situation where on the one hand all workers in the nonmanufacturing occupations, together with industrial workers producing textiles, clothing, shoes and leather, construction materials, and furniture, have high rates of participation in private work while, on the other hand, workers in heavy industry (mostly machine-building in the sample) and in the food and other sub-branches engage in very small proportions in private work. The highest rates are found among Construction workers (52 percent of all men, 74 rubles a month). The typical rates for the high PW occupations (mostly for men) are between 15 and 25 percent for W3D (in Transportation it is only 14 percent) and between 20 and 35 rubles

* Private wages and relative private-to-public wages are calculated on the basis of wages of those actually engaged in both public jobs and PW.

per worker per month, some 20 percent above public wages. In the low participating occupations, the W3D rates range from 2 to 8 percent, monthly wages from 3 to 8 rubles, and the relative increments to public wages from 2 to 6 percent. We shall return to the discussion of private wage rates.

Two main observations on employees emerge from Tables 4b and 4c: first, we see a repetition of the patterns observed for the service branches of the economy, except that some specific rates of PW for more restricted occupational groups are much higher. This is the case with respect to medical employees, employees in communal services, and education and culture professional groups. This is also the case with respect to the medical professions, especially dentists--the only identified professional group who reported higher earnings from PW than from its main public job (close to 127 percent more). Second, it is observed that major professional groups--engineers, technicians, and administrators--have very low PW participation rates and earnings. The rather high proportion of workers in these groups employed in manufacturing is a major factor that drives down the PW rates in this branch. Similar situations exist in other high PW branches, where separating public administrators (and also engineers and technicians) helped to focus attention on the higher participation rates of the professional groups that provide the specialized services of these branches.

To complete the picture on PW, Table 5 presents data *only* on the group of privately employed by (aggregated) occupation. With few exceptions, all aspects of private work attain higher levels in occupations with high levels of participation in PW. This relation is stronger (and statistically more robust) for men. Earnings per month are higher for private workers in medical services, communal services, production workers of type (a) (where PW is high), and in education than for private workers who are engineers and technicians, administrators, or production workers of type (b), that is in low PW branches.* In most cases, differences in monthly earnings result from corresponding

* See exact definition of groups (a) and (b) in the notes to Table 5.

Table 5
HOURS AND WAGES OF PRIVATE WORKERS BY OCCUPATION AND SEX^a
(Privately Employed Only)

	Number of Workers	W3 (rubles)	H3 (hours)	W3/W1 ^b (%)	W3/W2 ^b (%)	H3/H1 ^b (%)	WPH3 ^a (rubles) per hour	WPH3/WPH1 ^{a,b} (ratio)	W1 (rubles)	H1 (hours)	WPH1 (rubles) per hour
Engineers and technicians	All	75.3	7.3	49.8	48.3	17.8	2.6	2.7	180.0	41.6	1.0
	Men	79.1	7.0	52.4	50.5	17.1	2.8	2.8	186.1	47.7	1.0
	Women	60.8	8.3	39.9	39.9	20.3	1.9	2.3	156.7	41.0	0.9
Medical workers	All	148.3	9.2	124.1	121.4	23.8	4.1	6.0	127.6	41.1	0.7
	Men	220.8	11.7	170.9	166.2	29.7	5.3	7.1	150.2	41.7	0.8
	Women	75.8	6.8	77.3	76.6	17.8	2.8	4.8	105.1	40.5	0.6
Education and culture	All	71.1	8.0	62.1	56.0	65.3	2.6	2.6	135.2	29.9	1.3
	Men	88.2	7.9	70.0	58.1	72.0	3.1	3.1	156.8	33.5	1.4
	Women	54.8	8.1	54.6	53.9	59.1	2.2	2.0	114.8	26.5	1.3
Planning and trade ^c	All	48.0	14.3	35.8	31.5	34.6	0.7	1.0	128.5	41.3	0.7
	Men	60.0	17.5	42.4	41.5	42.7	0.7	0.9	134.5	41.0	0.8
	Women	36.0	11.0	29.2	21.4	26.5	0.8	1.1	122.5	41.5	0.7
Communal services ^c	All	124.1	12.0	87.9	87.2	29.5	3.0	3.8	142.1	40.4	0.8
	Men	152.7	11.6	89.0	89.0	28.5	3.8	4.0	161.8	40.1	0.9
	Women	61.0	13.0	85.4	83.3	31.7	1.3	3.2	98.6	41.0	0.6
Production workers (a) ^d	All	157.1	14.6	101.2	99.4	35.3	3.4	4.0	166.7	41.5	0.9
	Men	157.6	15.0	100.4	98.5	36.1	3.2	3.7	171.7	41.5	1.0
	Women	151.7	10.7	110.1	110.5	26.0	5.4	6.6	111.3	41.0	0.6
Production workers (b) ^d	All	84.4	7.4	62.5	57.8	17.8	3.1	4.0	149.0	42.2	0.8
	Men	84.4	7.4	62.5	57.8	17.8	3.1	4.0	149.0	42.2	0.8
	Women	--	--	--	--	--	--	--	--	--	--

^aFigures are based on returns of 159 private workers and employees (see note to Table 2).

^bSee Table 3 note e.

^cWorkers and employees.

^d(a): Employed in wood, textile, clothing, construction and construction materials, and transportation industries.

(b): Employed in other branches of manufacturing.

differences in hours worked and rates of hourly pay. Workers in all high PW occupations spend on the average more than 10 hours weekly on PW (only in education do they spend less), and all those in low PW occupations, except for the five people in administration and trade, spend less than 10 hours weekly in such pursuits. Similarly, earnings per hour are highest for medical workers (5.3 rubles) and communal service workers (3.8) and lower (administrators and trade workers are again an exception) for engineers and technicians, educational workers, and the two kinds of production workers (between 2.8 and 3.1).

A more complete explanation of the propensity to engage in private work must consider, in addition to occupation and sex, such factors as wages, incomes, family size, wage ratios between the public and the private sectors, and public alternatives of extra work. Such analysis is carried out with the help of the following equations:^{*}

$$EW_i = a + bRW + cRH + dYR_i + eFS + fED + gMOS + \sum_i h_i OCCP_i + kSEX + U_j \quad (1)$$

$$LN WPH3 = \alpha_1 + \beta_1 LN WPH1 + \gamma_1 ED + \sum_j \delta_{1j} OCCP_j + U_k \quad (2a)$$

$$LN WPH3/WPH1 = \alpha_2 + \dots + \gamma_2 ED + \sum_j \delta_{2j} OCCP_j + U_k \quad (2b)$$

Where: EW_i are dummy variables for extra work, taking the value 1 when the worker is engaged in some form of extra work, and subscript 1 stands for private work, 2 for extra public jobs and 3 for overtime work in the main place of work.

RW - regular wages: net monthly earnings at the main place of work *without* overtime.

RH - regular hours: number of weekly hours at the main place of employment *without* overtime.

^{*}This is a preliminary analysis. A full analysis on all respects of labor supply, including extra work of all kinds, must await a separate study.

YR_i - monthly family disposable income less RW and earnings from the respective type of extra work (see EW_i).

FS - family size.

ED - level of education, measured in years of schooling.

SEX - a dummy variable for being male.

WPH1, WPH3, WPH3/WPH1 - as above.

$OCCP_i$ - detailed occupations (as in Table 4).

$OCCP_j$ - aggregated occupational groups (as in Table 5).

MOS - a dummy variable for Moscow.

The estimates include only those workers with full-time jobs in the public sector, so that the analysis concentrates on extra work as a supplemental source of income alone, and not as a competitive one to wages from the regular job. However, since regular hours vary, by regulation, between jobs, those with fewer hours leave more time to engage in extra work, and in this respect main work and extra work may be gross substitutes--across jobs. Therefore we expect a negative RH coefficient with respect to EW_i .

For a given number of hours worked (RH), regular earnings (RW) become a measure of wages per hour; the lower it is, the higher should the tendency be to engage in alternative work that may pay more (see below). The coefficients of both RH and RW may also reflect the negative effect of higher income on extra work. The income effect, which is expected to be negatively related to extra work, is estimated by YR_i and family size (FS) which, together, reflect the levels of YR_i per family member.* We do not have an *a priori* prediction for the effect of the level of education on extra work, and the expectations on

*Since YR_i includes the husband's earnings (as well as those of other family members) this high income effect includes elements of cross substitution effects and it is not pure. At this level of analysis and for lack of good data on nonearning incomes we let it stand as is.

the effect of $OCCP_i$ and SEX on private work are in line with the corresponding gross effects found in Tables 2-4 above.

Finally, the propensity to engage in private work (EW_1) depends also on the availability and pay rates of the other alternatives for extra work--in the main place of work (EW_3), and elsewhere within the public sector (EW_2). The earnings derived from such alternatives are included in each case in YR_i . The competition between these alternatives with respect to other variables (especially occupation) is observed at this point by comparing corresponding coefficients across equation (1).

Equations of type (1) are estimated only for full-time workers. Separate estimates for males and females and for slightly different specifications were also made and will be referred to when relevant. Since the dependent variables are dichotomous, a discriminant function, rather than ordinary least squares, was estimated.

Since there are no data on private wages for the majority of workers--those who do not engage in private work [equations of type (1)], we cannot estimate the effect of higher private wages on the decision to engage in private work. Equations (2), estimated only for those who do work privately, constitute a second best approach to this problem. In equation (2a) the hourly private wage rate is 'explained' by its public counterpart as well as by level of education and occupation. In equation (2b) the relative private to public wage rate is explained by the same variables. Since there are only 160 observations, occupations were aggregated into seven groups with engineers and technicians serving as the standard.

Full presentation of the estimates can be found in Appendix Table 1. The coefficients of the variables other than $OCCP_i$ in equation (1) are presented in Table 6. The main findings, resulting also from equations (2) (Table 7) are merged with the following listing of factors to shape the extent and patterns of private work:

1. We again observe the wide difference between males and females in all forms of extra-work activity including PW. Results of corresponding equations with no $OCCP_i$ variables or only for males (not shown) say that the low participation of women in extra work is only marginally explained by their specific occupational structure.

Table 6

ENGAGEMENT IN EXTRA WORK: REGRESSION RESULTS^a

	Private Work (EW1)	Public Jobs (EW2)	Overtime (EW3)	Extra Work (EW)
Constant	-1.3785 (-1.4288)	-4.8753 (-5.6026)	-3.3269 (-2.8206)	-2.2372 (-3.3206)
Sex	1.3287 (5.6910)	1.5952 (7.0167)	1.3742 (4.0939)	1.6654 (9.7897)
Regular wage (RW)	-0.0048 (-3.0241)	-0.0016 (-1.4068)	-0.0017 (-0.9872)	-0.0021 (-2.2503)
Regular hour (RH)	-0.0581 (-3.3404)	-0.0102 (-0.6596)	-0.0621 (-3.4387)	-0.0416 (-3.4080)
YR _i	0.0007 (1.1933)	0.0001 (0.1848)	-0.0008 (0.9708)	0.0038 (9.1669)
Education (years) (ED)	0.0465 (1.3059)	0.0803 (2.3649)	-0.0250 (-0.5052)	0.0380 (1.4756)
Family size (FS)	-0.0160 (-0.1595)	0.2299 (2.5541)	0.4317 (3.3698)	-0.0515 (-0.7431)
Moscow	0.6975 (2.4556)	0.1898 (0.7206)	0.0912 (0.2084)	0.1359 (0.6331)
\bar{R}^2	0.1107	0.1233	-1.2982	0.1892

Figures in parentheses are t values.

^aAll the equations include variables for occupations. Full results are presented in Appendix Table 1.

2. Jobs with fewer regular hours encourage higher private work as well as other forms of extra work. Because there is a strong correlation between the occupational structure and the number of regular hours, the RH coefficients are larger (in absolute value) and are more significant when OCCP₁ variables are excluded from the equations.

3. While all forms of extra-work activity are negatively correlated with public wage rates (RW), only the coefficients for private work and for all extra work are significant. It is indicative that people do not turn to overtime work in the same place of work--for the same low wage.

Table 7

ABSOLUTE AND RELATIVE PRIVATE WAGE RATES:
REGRESSION RESULTS

Independent Variables	Dependent Variables		
	LNWPH3	LNWPH3/WPH1	WPH3/WPH1
Constant	2.6148 (3.8122)	4.6111 (12.3107)	1.4840 (1.2993)
LNWPH1	0.4045 (3.0748)		
ED	0.0577 (2.6927)	0.0512 (2.2941)	0.0779 (1.1393)
$OCCP_j$			
Medical workers	0.5835 (3.0209)	0.8418 (4.3466)	1.7813 (3.0414)
Education and culture	-0.1474 (-0.8516)	-0.1311 (-0.7249)	-0.5684 (-1.0858)
Planning and trade	-0.8158 (-2.2225)	-0.6687 (-1.7591)	-1.4588 (-1.2955)
Communal services	0.2248 (0.8650)	0.4364 (1.6453)	1.0815 (1.3466)
Production workers (a) ^a	0.5017 (2.1610)	0.5119 (2.1184)	0.9799 (1.3305)
Production workers (b) ^a	0.5050 (1.9994)	0.5797 (2.2121)	1.6633 (2.1347)
\bar{R}^2	0.1724	0.1824	0.1044

Figures in parentheses are t values.

^aProduction (a) includes workers in wood, textile, clothing, leather and the shoe industries, construction and construction materials, and transportation. Production (b) includes all other workers in manufacturing.

4. Of all kinds of additional work, only private work fails to respond to the income effect; although YR_1 is not significant throughout, family size (FS) has significant positive coefficients for extra public jobs and for overtime. This may be an indication that private work is more constrained by noneconomic factors. A negative income

effect on private work may, however, be merged with the effects on hours and wages.*

5. The occupational patterns of private work are very similar to those shown in Table 4: similar in some aspects, but different in others from the occupational patterns of other types of extra work. In two or three cases the alternatives compete successfully with private work: medical doctors and educational workers do a lot of extra work in public jobs, within and outside their main place of work, but engage relatively little in private work. The third group where such competition does exist, the only one among blue-collar workers, is that of transportation workers where overtime is somewhat more pronounced than private work. On the other hand, private work dominates the field in those blue-collar occupations where private work (or any type of extra work) takes place.

The competition is more balanced--with high levels of extra work of all or most kinds--for dentists, nurses, and transportation workers. Finally a very low level of all kinds of extra work--private or public--is found among technicians, administrators, trade workers and employees, as well as among blue-collar workers in the food and heavy industries. Engineers also belong to this last group.

6. Higher relative private to public earnings per hour clearly encourage private work. This conclusion is drawn from comparing the coefficients of the various occupations in equation (1) for private work (Appendix Table 1, Column 1) with corresponding coefficients in equations (2) (Table 7). According to the latter, higher relative private wages are found for the medical profession, for workers in communal services (equation 2b) and industries, production workers in type (a) and also type (b) industries (equation 2). All these occupations [except for type (b)] also show high levels of participation in private work. Low levels of relative private wages are found for workers

*The level of education has a positive effect only on extra public jobs. This may reflect multiple job holdings by academics in the form of extra jobs in research and consultations. Residence in Moscow enhances private work, although separate equations for males and females show that this is true only for the latter.

in trade and administration--they are even lower than the low level of engineers and technicians which serve as the standard of comparison. Again low private earnings correspond to little private participation and work. Relative private hourly earnings are also low for workers in education and this may be one reason for the rather moderate level of private participation (the coefficient in equation 1 is not significant) in this branch.

7. The relative level of hourly earnings is only one of the factors directing private participation. In essence it is a signal, an outcome of the market forces of supply and demand. High rates of private pay reflect shortages of specific goods and services that lure private participation. And indeed most of the available anecdotal evidence points to a strong correlation between private activity and shortages in the Soviet Union.*

8. In addition to this overriding factor, there seem to be a few other supporting explanations for the specific occupational patterns of private work.

Private work in services (including repair services and transportation) is less conspicuous than the production of goods and can be more easily disguised from the public eye. The conduct of many of these services (again in contrast with production) is, in principle at least, legal and thus involves less risk.

A high incidence of private work, however, is also found in areas where the workers have, through their main jobs, access to materials and possibly also to equipment in short supply that are essential to the performance of the private task. This is clearly the case in the spheres of construction, communal services (which include apartment maintenance), type (a) production, and dentistry. In most cases, it is impossible to distinguish between the demand for the services and that for source materials needed to perform the private work, but from what we know of the scarcity of construction materials, household fixtures, wood (for furniture), and the like, it is quite clear that the worker's access in the relevant industries to sources of supply of

* See, for example, Smith (1976), Ch. 3; Grossman (1977) and Simes (1975).

such materials must be very important in determining the demand for their services.

Finally, just as the opportunities for extra jobs in the public sector compete with private work, there are opportunities to earn extra money not only in the course of performing the main job but on the premises of the job as well. Two groups of workers are likely to be exceptionally well provided with such opportunities: those working in trade--retail, wholesale, public catering, and the like--and those holding administrative positions either in central administrative agencies or in other branches of the economy. So far, we have only observed that workers in these branches engage least in private work. We have to turn to other sources of private income--other than wages--to get the other side of the picture.

2. Other Private Sources of Income

Three other private sources of income are reported in the survey: income from leasing apartments or rooms, income derived from private agricultural plots, and 'other income'.

Only 14 families reported income from rent, the average monthly income being 51.4 rubles and the average contribution to average family income for the entire sample amounting to only 0.7 rubles.

Sixty families in our sample had private subsidiary plots from which they derived between 3 and 158 rubles per month, the average being 39.2 rubles. Averaged over the 1016 families this source adds 2.3 rubles per family per month.* Most of this income (about 87 percent) is earned by families residing in small cities (less than half a million people). Private plot activity is more than proportionally concentrated among families whose heads are blue-collar workers, employed in agriculture, and older people. It should be emphasized that the survey covers urban residents only, and thus only a small portion of the private-plot sector is represented.

'Other income' was reported in response to the following question: Did your family receive any other income no matter from whom or from

*Only about a quarter of this income is derived from sale of products; 75 percent is self consumed.

where. Since at the time all other possible sources of income had been exhausted by previous questions, 'other income' (OI) must have been understood to refer to sources of private income of questionable legality. Such incomes most likely include: first, 'tips' received in the main place of work for the provision of services to clients that are either part of the regular duties of the worker or that indicate some preferential treatment. We are told by the Soviet press and other sources of tips paid to acquire or expedite the handling of various documents from public officials; to get ordinary and preferential treatment from nurses in hospitals; to get ahead in queuing for scarce goods; and so forth. Second, there are payments for preferential treatment in the supply of goods and services mostly in the retail and service industries. Such payments clearly contain an element of 'tip'; they entail higher-than-official prices for goods of higher quality or that are in short supply. Third, 'other income' may include private work either because in some cases the distinction between a 'tip' and the provision of a new service is not clear (i.e., a plumber installs a new faucet during regular working hours for an extra fee), or because some of the respondents simply preferred to report on private work under this category. Fourth, 'other income' could be simply the value of goods taken from the public sector either for own use or for resale. Judging on the basis of available evidence, this must be a major source of OI. Finally, OI could include the proceeds from the sale of used items and interest on saving accounts and government bonds, sources about which we did not ask separately.

All in all, 102 families reported having some source of OI, the amounts ranging from as little as 3 rubles to as much as 400 rubles per family per month. The average intake for a family who had such income is 78.9 rubles per month, a significant sum by any count. For all 1016 families, OI adds almost 8 rubles per family per month, constituting about 2 percent of total family income.*

The opportunity to demand or receive 'tips' or to have access to goods belonging to the public sector is closely connected with branch

* For an illuminating discussion on these sources of income see Grossman (1979), pp. 3-15.

employment and occupation. The breakdown of OI for branch of the economy is presented in Table 8 and supplementary findings for occupation are given in the text. Since we have no information on who in the family provided this income, the data are presented in cells of branch of employment for both husband and wife. The table presents data on three variables: the proportion of families with 'other income' for a given branch, the average monthly level of OI per family in the group, and the average monthly level of OI per family with OI in each group. Since there are only 102 families with 'other income' the results presented here depend necessarily on a small number of observations for each branch or occupation.

In general, the findings support the expectation that 'other income' is concentrated in branches such as trade, public administration, transport, construction and other services where such incomes are most likely to be created and that it is greatest where on-the-job opportunities reduce the incentives to seek private work.

Public administration stands out as the branch with almost the highest incidence of OI as well as the highest level of average per family OI: 14 to 16 percent of all families in public administration had OI (as compared with about 10 percent on average), the average increment created for *all* families in this branch being about 15 rubles per month, almost double the average. Finally, the level of OI per family with such income in public administration is also among the highest: 101.5 rubles for families with heads in this branch, 95.3 rubles with wives there. Unfortunately these results are based on too few cases (2 out of 14 for men, 4 out of 25 for women) to make them conclusive.

The proportion of families in which one of the main earners is employed in trade and had OI is not exceptionally high; in fact, it is below the average for both heads and wives and, in this respect, the results differ from expectations. On the other hand, OI of such families is the highest among all groups; it is so high that despite relatively low proportions of such families, average OI per family of the entire trade group is the second highest among all branches when families are sorted by the branch of the family head (the top 5 families

Table 8
REPORTED 'OTHER INCOME' BY BRANCH OF THE ECONOMY OF FAMILY HEADS AND THEIR WIVES

Category	Family Heads				Wives			
	Number of Families (1)	Percent with OI (2)	OI per Family (rubles) (3)	OI per Family with OI (rubles) (4)	Number of Families (5)	Percent with OI (6)	OI per Family (rubles) (7)	OI per Family with OI (rubles) (8)
All families	1011 ^a	10.1	8.0	78.9	891	10.2	7.5	73.5
Manufacturing	351	8.8	5.1	57.2	224	8.9	5.0	55.6
Agriculture	24	12.5	11.6	92.7	13	15.4	6.5	42.0
Transport	64	15.6	8.7	55.7	12	25.0	15.8	63.3
Communications	5	0.0	0.0	0.0	12	16.7	3.4	20.5
Construction	108	10.2	12.9	126.9	33	6.1	2.4	40.0
Trade and public catering	88	9.1	14.2	156.4	88	4.6	5.4	117.8
Communal services	119	11.8	7.4	62.9	77	18.2	10.4	57.3
Health	69	11.6	8.1	69.6	169	9.5	10.5	110.8
Education and art	91	11.0	10.1	91.9	174	11.5	8.5	73.5
Science	78	6.4	2.9	45.6	52	5.8	3.9	67.7
Banking and insurance	--	--	--	--	12	8.3	6.9	83.0
Public Administration	14	14.3	14.5	101.5	25	16.0	15.2	95.3
Wife not working ^b	--	--	--	--	120	9.2	11.3	123.1

^aNot including five non-working family heads.

^bNot included in the average per 891 families.

with OI in the entire sample has one worker in trade). A similar picture about trade emerges when families are sorted by occupation.

High incidence and levels of OI are also found in agriculture, transport (with lower average income level) and construction. Above-average incidence of OI is found among families in which wives are employed in trade, health, or education services. The occupational breakdown (not presented here) shows high OI levels among families in which wives are doctors, nurses, or working in communal services.

An interesting observation is that families in which wives do not work at all earn more 'other income': 11.3 rubles as compared with 7.5 for all families and 123.1 rubles as opposed to 73.5 per family with OI. This can be due to an income effect--lacking the wife's income, the family is forced to reach for alternative sources or, vice-versa, the existence of additional sources allows wives not to work; but it may also result from the wife helping her husband, in one way or another, to derive this extra income and thus being unable to 'afford' an official job.

Finally, we do find some differences in levels and incidence of OI when families are sorted by city size (higher levels in small towns) and by republic (more OI in the RSFSR and in Moldavia). There are also differences according to the level of family income, to which we shall return later.

3. Non-Reported Private Income

To what extent are the reports about other income and private work accurate? Despite the precaution taken in formulating the questions and the fact that the interviews were taken outside the Soviet Union, we believe that such incomes are likely to be underreported. *Over-reporting* is also possible--there may be a tendency by some to boast about how they beat the system--but the degree of illegality or even immorality associated with private earnings is certainly more important.

Support for this assumption is provided by the comparison of two other sources of data on income obtained from the questionnaire, with the main income estimate used so far: one is total expenditures (EX) which by definition should equal total income; the other is a declaration made by the family head on total income (Y') before answering

detailed questions on each and every income component. Family expenditures are greater than income by 14.3 rubles per month on the average. This difference (YD1) is the net result of all possible errors in reporting both income and expenditures and as such cannot be allocated exclusively to unreported private income; some of it however may be as we shall see below. One should expect Y' to be lower than Y --aggregated income: giving a one-shot estimate, people tend to neglect certain sources of income mentioned only at a later stage and indeed $Y - Y' = YD2$ averages 30.1 rubles. In those cases where Y' is greater than Y there is reason to suspect that some income elements were not reported and are not included in Y .

That YD1 and YD2 contain unreported income is first observed by finding larger levels of YD1 and smaller or even negative levels for YD2 for families who did not report on private incomes as compared with families who did report on having such incomes: thus, for families with private income (from any source) YD1' averages -5.0 rubles as contrasted with 20.3 rubles for families with no report on private income (average YD1' is 4.3 rubles). The corresponding figures for YD2 are 54.4 rubles for private income families and only 27.4 rubles for families with no such incomes (YD2 averages 30.1 rubles). Similar results are obtained for individual elements of private income, and all differences are statistically significant.

Except for the fact that YD1 is positive it may be claimed that differences observed between private-income families and no-private-income families result from overstating income by the former rather than nonreporting by the latter. That is not the case (or at least not mainly so) is demonstrated by following the patterns of YD1 and YD2 for families classified by branch or occupation. The hypothesis is that if the distributions of YD1 and YD2 are uneven among branches and significantly larger (and YD2 significantly smaller) for occupations, especially if YD1 tends to be larger and YD2 smaller in branches and occupations where we expect private incomes to be created, then much of YD1 and YD2 represents unreported income. We cannot think of another explanation for errors in the reporting of expenditures, income, or the difference between them to establish a nonrandom relation

with branches of the economy or occupations, let alone a pattern that conforms to our *a priori* knowledge of concentrations of private activity. On the basis of YD1 and YD2 we have defined a new family income variable YCR in the following manner: in all cases where Y' is greater than Y and conforms better than Y with total expenditures, we have substituted Y' for Y. There are 149 such cases. In addition EX replaced Y in 29 cases on the basis of the investigation of the saving variable.* Some further changes may be made in the future when other expenditure categories are investigated (YCR stands at a level of 398.06, just 1.76 less than EX). On the basis of YCR we define YD3 = YCR - Y and show its average level by branch alongside those for YD1 and YD2 in Table 9.

Table 9
UNREPORTED INCOME BY INDUSTRY
(Rubles per family per month)

Industry	Family Heads			Wives		
	YD1	YD2	YD3	YD1	YD2	YD3
	(1)	(2)	(3)	(4)	(5)	(6)
All working	14.3	30.2	12.6	13.2	31.7	11.4
Manufacturing	15.5	32.8	7.9	6.4	39.4	6.9
Agriculture	-7.9	39.3	7.8	-6.2	34.2	6.9
Transport	2.9	27.3	5.4	37.8	40.2	7.8
Communications	55.6	36.8	1.0	2.3	47.8	4.7
Construction	17.4	32.4	5.5	6.1	39.2	5.8
Trade	27.9	10.7	33.1	2.2	13.7	15.9
Communal services	-2.3	21.5	15.9	9.4	17.9	11.1
Health	25.5	41.5	24.3	22.4	26.9	20.7
Education and art	-3.9	42.9	10.0	23.9	33.9	10.6
Science	38.6	26.2	13.6	3.0	47.3	4.8
Banks and insurance	--	--	--	5.2	33.3	0.4
Public administration	20.5	21.9	25.2	62.2	27.8	11.9
Wives not working	--	--	--	22.7	19.1	21.6

*Offer and Pickersgill, forthcoming.

As can be seen, all income differences vary substantially among branches (many of the differences are statistically significant) and support the hypothesis that branch of employment affects their size. Specifically, when classified by branch of the family head, we find high income differences (and low YD2) in trade, public administration and health services (YD2 excepted for the latter).^{*} YD1 is also exceptionally high for science. High levels of supposedly unreported incomes are found according to branches of employment of wives as of men in public administration and health services, but to a somewhat lesser extent in trade and in education (YD3 excepted). Naturally, since men presumably bring home most of the private income, the distinctions by branches of wives are less sharp.

As for 'other income', here too families with non-working wives are found to 'underestimate' their own incomes to a much higher degree than families with working wives: YD1 for the first group is 22.7 rubles as compared with only 13.2 for the second; the corresponding figures for YD2 are 19.1 as compared with 31.7, and for YD3, 21.6 and 11.4 rubles respectively.

One should wonder to what extent the respondents found this way, intentionally or not, to report on such private incomes whose source they preferred to conceal when the specific question came up. On the basis of the above we conclude that the bulk of YD3 of about 4 percent of income belongs to 'other income' or to private earnings. Such incomes definitely change relative wages or earnings by branch and occupation. A summary of all sources of private incomes and their importance in total income, by families classified according to branch or occupation of the family head, is presented in Tables 10 and 11. Some concluding observations on their basis are these:

First, private earnings of all types, YP, including YD3, are estimated at 42.2 rubles per family, an addition of 16.9 percent above all earnings from the public sector. This is no doubt a significant figure. It remains so even if only part of YD3 is included in YP.

^{*}Disregarding communications due to small number of families.

Table 10
FAMILY PUBLIC AND PRIVATE EARNINGS BY INDUSTRY OF FAMILY HEAD

Industry	No. of Families	Rubles Per Month					Percent			Index	
		Y2+YP	Y2	YP	Y3	OI	YD3	Y3/Y2 ^a	YP/Y2 ^a	Y2	Y2+YP
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
All families	1011	377.5	335.3	42.2	18.6	8.0	12.6	7.5	16.9	100.0	100.0
Manufacturing	351	365.4	341.8	23.6	7.5	5.1	7.9	3.8	8.5	101.9	97.8
Agriculture	24	333.6	287.8	45.8	13.6	11.6	7.8	4.5	22.9	85.8	88.4
Transportation	64	355.2	314.4	40.8	21.0	8.7	5.4	6.7	14.7	93.8	94.1
Communications	5	310.8	309.8	1.0	0.0	0.0	1.0	0.0	0.4	92.4	82.3
Construction	108	381.9	346.3	35.6	15.9	12.9	5.5	5.3	13.4	103.3	101.2
Trade	88	368.7	310.9	57.8	4.3	14.2	33.1	1.5	26.3	92.7	97.7
Communal services	119	365.6	297.5	68.1	43.1	7.4	15.9	18.5	30.5	88.7	96.8
Health	69	429.1	348.0	81.1	48.1	8.1	24.3	21.3	32.6	103.8	113.7
Education and art	91	423.2	371.6	51.6	29.7	10.1	10.0	9.8	20.4	110.8	112.1
Science	78	395.5	360.3	35.2	16.7	2.9	13.6	6.0	10.9	107.5	104.8
Public administration	14	351.8	308.0	43.8	0.0	14.5	25.2	0.0	19.3	91.9	93.2

^aCalculated as averages of individual responses, not as the quotient of col. 4 (col. 3) entries divided by col. 2 entries.

Table 11
FAMILY PUBLIC AND PRIVATE EARNINGS BY OCCUPATION OF FAMILY HEAD

Occupation	No. of Families	Y2 (1)	YP (2)	Y3 (3)	OI (4)	YD3 (5)	Y3/Y2 ^a (6)	YP/Y2 ^a (7)
All families	1011	335.3	42.2	18.7	8.0	12.6	7.5	16.9
Engineers	283	365.1	29.0	7.5	5.7	12.5	2.8	8.7
Technicians	72	319.9	24.5	9.0	12.7	2.1	3.0	10.9
Medical workers	57	350.4	87.1	57.4	6.1	23.6	24.9	35.8
Education, culture and science	140	381.4	39.1	18.9	8.6	9.7	6.7	15.3
Management and administration	45	339.3	20.6	3.2	1.0	11.7	0.7	6.5
Trade workers and employees	76	311.2	58.0	3.6	21.5	30.0	0.8	24.8
Communal workers and employees	44	302.7	88.8	56.8	6.6	23.8	14.5	26.4
Production workers (a) ^b	127	295.5	65.0	44.1	4.5	12.1	20.0	14.3
Production workers (b) ^b	167	296.2	28.6	10.0	8.5	5.4	5.9	31.0

^a Calculated as averages of individual responses, not as the quotient of col. 3 (col. 2) entries divided by col. 1 entries.

^b See note d in Table 5 above.

Second, although private earnings of all kinds exist in all branches of the economy and in most occupations, they are concentrated in certain areas. The observed patterns of distribution of YP and its elements correspond quite closely to deductions made on the basis of the analysis of the economic situation, and of qualitative and anecdotal evidence about the realities of life in the Soviet Union.

Finally, the uneven distribution of YP among the various branches of the economy changes the relative incomes of families by branch of the family head. As can be observed by comparing columns 9 and 10 in Table 10, YP raises the relative incomes of families whose heads are employed in health further away from average; it raises relative incomes of families in trade and communal services, in this case toward the average from below; and it somewhat reduces relative incomes for families in manufacturing. As emphasized before, all these findings are based on the structure of the sample, not on the Soviet urban population; thus, the different structure of the latter may affect them.

B. PRIVATE INCOME OF THE SOVIET URBAN POPULATION AND IN SOVIET NATIONAL AGGREGATES

As stated in the Introduction, two distinct sets of steps must be taken to extract data from the sample population (SP) estimates on the extent and patterns of private incomes and earnings for the entire Soviet population. The first set of steps involves reweighting the raw data by structural variables of the target (Soviet) population. The most that such reweighting can hope to accomplish is to produce estimates for the investigated variables for the Soviet urban population (UP) of the non-Asiatic republics, and even this only if it is assumed that no pure 'Jewish' or 'emigrant' biases exist. The second set of steps is intended to move the estimates to the level of Soviet national economic aggregates. By the nature of the problem, it is clear that this second set of steps involves rather heroic assumptions based on much less concrete information.

The choice of the structural variables for the first set of adjustments is made on the basis of two criteria and one constraint.

The variables should be the most important in determining the levels and patterns of the investigated phenomena, and those in which the SP-UP differences are wide. The constraint, is, of course, the availability of information about the variables to be reweighted. The structural variables that qualify under the above are, of course, the occupational (or branch) structure by sex or family status. The grouping by occupation and sex explained most of the variation of private work (PW) and that by branch of family head most of the variations of other sources of income. Although we can further reduce the unexplained variation of some of the PW variables by adding a few other variables, a too fine breakdown of the raw data for reweighting purposes results in too small cells and a decline in the quality of the estimates.*

The results of a selected number of reweighting schemes are reported in Table 12; results for private earnings for individual workers are shown in Part A, and those for all kinds of private earnings per family, classified by family heads, in Part B.[†]

In Part A, we find first that when fully reweighted the proportion of the urban population (UP) engaged in private work is estimated at between 6.2 (Col. 3) and 8.8 percent (Col. 5) of all workers as compared with 8.1 percent in SP. The corresponding figures for monthly earnings from private work per worker are between 6.3 and 10.3 rubles for all workers and 8.9 rubles for those in SP. The implied private earnings for those engaged in private work average 101.6, 117.0, and 109.9 rubles respectively. All reweighted figures are not very far from those for SP; still, the differences warrant some explanation.

* Disaggregation to smaller cells simultaneously increases the within-cell uniformity and thus improves the predictive power of the reweighting process, but reduces the number of observations per cell and the dependability of the estimate. There is an optimum degree of disaggregation at reasonable levels.

[†] The industrial and occupational structures that are used as weights are for the entire nonagricultural employed population of the Soviet Union. Only very small and insignificant differences are expected to result by substituting the corresponding structures for those of the seven Western republics only.

Table 12
PRIVATE EARNINGS OF THE URBAN POPULATION AND SAMPLE POPULATION

	Sample Population	Urban Population Weighted By:				
		Branch and Sex		Occupation	Occupation and Sex	
		(1)	(2)	(3)		(4)
<i>A. Employed persons</i>						
1.	Percent working privately (W3D)	8.1	6.7	6.2	10.5	8.8
2.	Monthly private earnings (W3)	8.9	7.3	6.3	13.0	10.3
3.	W3 ÷ W1 (%)	6.5	5.0	4.4	8.5	7.0
4.	Monthly public wages W1 (rubles)	152.1	157.3	150.7	150.1	143.9
5.	W3 ÷ W1 [(2) ÷ 1368]			4.6		7.5
6.	W3 ÷ W1 [(2) ÷ 124.1]			5.1		8.3
<i>B. Families</i>						
7.	Private income (UP) (rubles)	42.2	35.4		41.1	
8.	Private wages (Y3) (rubles)	18.7	14.8		22.1	
9.	Other income (OI) (rubles)	8.0	7.9		7.8	
10.	Unreported income (YD3) (rubles)	12.6	9.6		7.6	
11.	YP ÷ Y1 (percent)	17.5	14.0		17.0	
12.	Y3 ÷ Y1 (percent)	7.9	6.1		9.0	
13.	OI ÷ Y1 (percent)	3.6	3.5		3.6	
14.	YD3 ÷ Y1 (percent)	4.9	3.6		2.9	
15.	Earnings from main job (Y1) (rubles)	321.9	322.9		304.0	
16.	Earnings from public sector (Y2) (rubles)	335.3	336.1		315.2	

The sample population is made up of 52.5 percent men and 47.5 percent women as compared with 52.1 percent women in UP. Since women participate much less in PW, the true UP proportions alone 'explain' a decline of about half a ruble in W3. Furthermore, the deficit of women in SP is concentrated relatively more in the branches and occupations in which the overall private work levels are high. A 'correction' for this asymmetric deficit further dampens the W3D and W3 estimates for UP. This can be seen by comparing figures for the above variable in columns 2 and 4 with those in columns 3 and 5. The pure branch effect of reweighting further reduces the figures of private work while the pure occupation effect increases it quite substantially. This results from the fact that, although the industrial distribution of SP is more concentrated in high private work industries than UP, its occupational structure is further removed than UP from high private work occupations. In both cases this results from average or overall tendencies, not necessarily true for each branch or occupation.

The figures obtained from the classification by branch result from a high concentration of the SP labor in education, health, communal, and related services, despite a low concentration in construction and transportation. The relatively high concentration of SP among engineers and technicians (with low PW levels) and the low representation among transportation and construction workers by occupation are enough to more than offset the high concentration in health and some other high private work services and to produce higher levels of W3D and W3 for UP. Judging by the level of statistical significance of the two alternative classifications, the occupational classification turns out to be the more dependable.*

In calculating the weighted relative increments of private wages (W3) to official wages we have used three alternative estimates of public wages: SP wage from main job (W1) reweighted according to the same branch or occupation weights as W3 (line 3); SP wage from the main job (W1) reweighted through an alternative weighting scheme which

*This observation is based on regression results that are not shown.

we have found to be more appropriate to W1 (line 5);* and finally, as W1 we have used the Soviet official (net) wage of 124.1 rubles in 1973 (line 6).†

The resulting estimates for W3/W1 range from 4.4 to 5.1 percent based on branch and 7.0 to 8.3 percent base on occupation.‡ The main difference is still caused by the weighting system, and of all estimates we tend to support the range between 7 and 8 percent. It should be remembered that W3 was found to be negatively related to W1. Since public wages of SP, even when reweighted, remain higher than the corresponding official figures, W3 for the lower official wage may be higher than 9.94 rubles, and correspondingly W3/W1 may be above 8 percent. As we have seen, all these figures are very likely underestimates since they do not include any additional private wages that may be included among other sources of private income, either OI or unreported sources.

In part B of Table 12 a similar analysis is carried out for private sources of income of families: Total family income from all such sources--YP--is made up of private earnings of all family members ($Y3 = \sum W_3$), OI, YD3 and income derived from subsidiary plots and apartment rent. The weights are those of family heads.

Income from private work per family of urban population is estimated between 14.8 and 22.1 rubles as compared with 18.7 for SP. The estimates for OI are almost identical by all weights at close to 8 rubles and those for 'unreported' income (YD3) range between 9.6 (by branch) and 7.6 by occupation (12.6 for SP). Total private income adds up to 42.2 for SP and almost the same for UP, 41.1 rubles, when weighted by occupation, but somewhat less, 35.4 rubles when weighted by branch. Since the main difference comes from the figure for Y3, we tend to stick to a figure of around 40 rubles per family.

Private earnings add between 14 and 17 percent to earnings from the main job (line 11) and up to a percentage point less if all public

* Ofer, Vinokur and Bar-Chaim (1979), Table 16, and pp. 39-42.

† Ibid., Appendix, Table 1.

‡ When total earnings from the public sector (W2) is used as denominator instead of W1 the percentages are smaller by about 0.3 points.

earnings (Y2) are considered. More than half of this increment comes from private work (occupational weights), a fifth from other income, a sixth from unreported income, and a tenth from subsidiary plot and rent.

The reweighted estimates for Y1 (and Y2) for UP are still higher by about 50 rubles than our independent estimate based on Soviet official data.* This remaining difference is explained by more workers per family in SP, by a small difference in the sex composition, by differences in the educational levels not accounted for by the occupational reweighting, and by some other factors. Since YP (and its elements) is slightly negatively related to public earnings and the ratio YP/Y1 more strongly so, it follows that YP for families with an average income of 248 rubles--as in UP--will not be lower than our reweighted magnitude of about 40 rubles. This implies a YP increment of at least 17 percent, but possibly up to 20 percent over public earnings. Even if YD3 is completely eliminated, YP/Y1 would not be less than 15 percent.

We now proceed to move these estimates to the level of national aggregates. Of the various possible ways, we have chosen to bring the absolute figures to a per worker basis and then multiply them by the number of workers and employees in the urban sector, or by the total number of workers and employees outside agriculture. The latter calculation is based on the assumption that nonagricultural families of rural residents behave with respect to the second economy similarly to urban families.

Based on reweighting by occupation (Table 12) we derive the following estimates for 1973 [in billions of rubles (BR)]:[†]

* That is, 288 to 303.3 rubles compared with 248.2 rubles per family with workers. See Ofer, Vinokur, and Bar-Chaim (1979), p. 35.

[†] Based on 2.00 workers per family with workers in UP [Ofer, Vinokur, and Bar-Chaim (1979), Appendix Table 1]. The number of workers and employees outside of agriculture in 1973 is \$87.1 million and those in UP about 72.6 million. When Y3 is estimated directly from our estimate of 9.94 rubles per worker, the figure is 10.4 billion rubles (BR). Estimates based on reweighting by branch are slightly higher (by about 0.5 BR for YP), but the share of YD1 is higher and that of Y3 is lower by about 6 BR. If YD1 is cut by half, YP as well as YD1 are reduced

		Urban Population	Nonagricultural Population
Total private income	(YP)	18.0	21.0
Private earnings	(Y3)	9.7	11.6
'Other income'	(OI)	3.4	4.1
Nonreported income	(YD3)	3.3	4.0
Subsidiary plot		~ 1.2	~ 1.5
Rent		~ 0.3	~ 0.4

The figures of 18.0 or 21.6 BR are based on urban behavior in the seven Western republics so that if the levels of privately earned incomes are higher among rural-nonagricultural families or, which is definitely the case, in the Asian republics, then those figures are underestimates. In the following calculation we shall use the figure for the entire nonagricultural sector, the corresponding figures for the urban sector alone are 0.933 of the former.

How does the figure of 21.6 BR relate to existing estimates of Soviet GNP and its components? How much of it should be added to the various accounts? To GNP (or to any other aggregate) one should add only that part of private income which is new value added and not accounted for in existing estimates. This implies subtracting from 21.6 BR: a) private incomes included in existing estimates; b) the parts of these sums that are not value added.

Let us consider point (b) first: when GNP is measured in *prevailing* prices or when its *welfare* equivalent is sought then the entire value of sales in the private sector should be added simply because these are actual sales. However, when GNP in factor costs is considered, various elements of the private volume of sales should, or at least may, be excluded. Included even in GNP at factor costs is first the value of factors and inputs created solely by private activities outside the public sector. The difference between the total volume of private activity and this 'genuine' new value added is made up of:

(1) Costs necessary to make illegal private production possible: they include bribes and tips as well as risk premiums to cover possible

by about 2.2 BR. Finally, all the figures increase by 11.3 percent (YP is raised by 23.3 BR) if the estimates are made for all workers or employees (including those working in agriculture).

prosecution. Under the existing situation these are genuine production costs and may be included as a special input or factor cost. It may be doubted, however, whether one should include in GNP both the costs of avoiding the law and the costs of law enforcement designed to fight these activities.

(2) Costs or value of materials, goods and labor services (working privately on company time) stolen from the public sector. Since their factor costs to the private producers is zero, these inputs are not included in GNP in factor costs. It is our claim, however, that even when GNP is measured in prevailing prices there is room to consider their exclusion. Most, if not all of the value of stolen inputs is already included in GNP as part of the *price* paid by consumers for goods and services purchased from the public sector. This is so because stolen goods, materials or time, figure as a cost element towards the production of goods and services. Since such phenomena are general and well established, it is very likely that the losses incurred are included in the calculation of normative costs of production that serve as a basis for price information. Stolen time may simply show up as lower labor productivity. When these high prices are for consumer goods or intermediate products for consumer goods, the costs of theft are charged directly to the consumer and are included in the official figures of household outlays. In cases where theft is from enterprises producing for investment or public sector uses (construction, defense, etc.) the charge to the private consumer may show up through taxation (including turnover tax), or wage determination. The data presented in this report and the anecdotal evidence point to the fact that the bulk of theft (with the important exception of construction materials) is made in consumer goods industries and in the trade system.

(3) Finally, an element of scarcity rents, over and above all costs, which constitutes a legitimate element of value added but not a 'factor cost'.*

* A detailed discussion on the problems of including illegal activities in GNP can be found in Ofer, G., Mimeo 1979; for a debate on the problem of double-counting, see also Schroeder and Greenslade, 1979.

As stated at the outset, if we follow the formal definition of 'prevailing prices' and include all illegal activities against the state--all or almost all of YP should be added to GNP. If however we allow for the double-counting caused by theft and legal costs, or think in terms of GNP at factor costs, then parts of OI and YD3, including such elements, should be excluded. If half of the income from these sources is excluded, then a minimum amount to be added to GNP is about BR 17.5 for the entire nonagricultural population.

Next we have to deduct that part of private income which is already included in Western estimates of Soviet GNP. We use here only one such estimate, that of the CIA for 1970 since this is the only recent estimate detailed enough for our purposes.* When needed we move the estimates to 1973 using growth rates from Greenslade (1976, p. 276). This is an estimate at established prices; that is, official prices for public goods and services and market prices for private transactions. This GNP estimate follows the methodology developed by Bergson, Becker, Greenslade and others and is based on four basic accounts: household incomes, household outlays, and public sector incomes and outlays.

Since in the 1970 estimate, as in others, total household incomes fall short of household outlays, the latter is used as the household sector input to GNP. Included in household outlays are 4.4 BR (4.8 in 1973) of private incomes that are also included in our figure of 21.6 BR. The CIA estimate includes, for obvious reasons, a much higher estimate than ours for income from subsidiary farms--so we have to deduct our figure of 1.5 BR. In addition it includes estimates similar to ours for rents, but lower figures than ours on income derived from construction, house repairs and other repairs, personal services, and private educational and health services.† Even if we assume that this entire sum of 4.8 BR is new value added, we still obtain a figure of BR 13-17 to add to the Western estimate of Soviet GNP in 1973 of about 450 BR, which adds another 3-4 percentage points to the nearly one

* CIA; USSR; Gross National Product Accounts 1970 (November 1975).

† A detailed account of the two sets of figures may be obtained from the author.

percent of urban private income already included. This is definitely not an insignificant figure considering that it represents only about two thirds of the population and only the consumer sector.

Similar calculations with respect to total household income in the Soviet Union show that on the basis of our calculations (for the non-agricultural sector) one should add to the CIA estimate of 230 BR-- which includes about 14.4 BR (6.3 percent) of private earnings--13-17 BR or some 6-7 percent. This brings the share of private income to the average Soviet household to about 11.5 percent.

But going one step back, the most significant figure for us is the estimated share of private income from all private sources in total incomes of the urban sector. Total net income of the urban population from all public sources, including government transfers, was in 1973 on the order of 136-140 BR.* The figure of BR 21.6 adds between 15 and 16 percent to this amount. This is not as high a proportion as the corresponding one for collective farm members (about 20 percent).† But it certainly makes a significant difference in the level of material well-being as well as in the way of life of the Soviet urban population. Such a figure would also justify the large amount of public attention devoted to private activity in newspaper articles and bulletins, in widely disseminated anecdotes, and generally in the urban folklore of Soviet society. There is no point in repeating here evidence well summarized in a number of books and articles by Western authors--Smith, Kaiser, and Grossman to mention only the most recent. Let us only note that the stories included in this anecdotal body of evidence tie in with the statistical and quantitative evidence provided by the sample. Not only do the kinds of activities mentioned in the stories find their statistical counterpart here, but there is also a strong correlation between the relative importance of various activities as learned from qualitative sources and other quantitative

* Based on CIA, Schroeder and Severin (1976), p. 653 and our re-weighted estimates.

† The CIA estimates total incomes of collective farmers (for 1970) at 41.2 BR of which 8.3 BR comes from CFM sales. The figure of 20 percent does not include income in kind. (Table 1, p. 3.)

manifestations in our study. This correspondence may be summarized best by a curse, cited by Smith, coming from Odessa: "Let him live on his (public) salary alone." (Smith 1976, p. 117.)

III. BUYING IN PRIVATE MARKETS AND FROM PRIVATE PEOPLE

A. INTRODUCTION

As seen in the last section, some private incomes come directly, in an unauthorized way, from the public sector. In most other cases the rubles earned by private activity are those spent by other people on a purchase from a private person.* For this reason the study of expenditures from private agents can be used to corroborate the estimates of private income, and to provide a clearer picture of the exact nature of goods and services supplied privately. Beyond that, however, information on such private expenditures (PEX)[†] is important in a full study of the true level and structure of expenditures of the Soviet urban household.

As in case of earnings, Soviet official information on consumption that draws on retail trade turnovers data or production statistics does not include private purchases other than in collective farm markets and some bazaars where second-hand items are exchanged. Soviet data derived from the family budget survey may include such expenditures but very little of this survey is published.

Unfortunately, our data on expenditures also suffer from a number of deficiencies that could be removed by future work only in part. The most important among these is that for a number of important expenditure categories no questions were presented on the shares or amounts of PEX. This applies to transportation services, culture and entertainment, the purchase of nondurable household goods, and a few others.[‡] In addition there is only partial coverage of purchase through the use of 'connections' from a public outlet, which we

* Exceptions are when people provide services to public enterprises on private account (*Shabshniki* working for *Kolkhozi* for example).

[†] Although all personal consumption is 'private' in the ordinary sense, throughout this report we use the term private for brevity to designate the *source of purchase* rather than the buyer.

[‡] As explained in the introduction, many questions on the private sectors were added to the questionnaire at the last moment, and these omissions are one of the results.

classify as PEX and which by all accounts is very significant. In these respects the PEX data are not complete and will provide an underestimate of the total.

A second problem is that for our sample, which represents only one segment of the population, there is no full correspondence between private earnings and private expenditures. The leading examples are purchases of fresh food in the collective farm market: all urban families are represented almost exclusively on the client side of the market. It may well be that the urban sector is a net exporter of some other private services or goods (construction?) to rural areas. But since the sample is also nonrepresentative of the urban population, such imbalances may also occur as a result of 'trade' among various segments of the urban population. Reweighting may be able to rectify some of the intraurban imbalances but not resolve them.

Finally, at the present stage the entire body of data on the expenditure side is still in raw form and was not checked for internal consistency and reliability. For this reason, very little work on the general patterns of expenditures was performed. These two temporary factors restrict at this point the scope of analysis of PEX to the more fundamental results. A second round of analysis, as well as much of the earnings-expenditure comparisons, must be postponed.

This section thus concentrates on a description of PEX as reported for SP and draws only first estimates of the implied magnitudes for UP as well as a few earnings-expenditure comparisons.

B. PRELIMINARY RESULTS AND COMPARISONS WITH OFFICIAL DATA

The major source of supply of goods and services for the Soviet urban household is the government and cooperative retail and service networks. About 85 percent of all private urban consumption needs are acquired in outlets of these two systems. Private purchases can be obtained through four channels: collective farm markets; private sellers in organized 'flea markets' or without any formal organization; theft of public property in various forms for own use; and the acquisition of goods and services from public outlets using some form

of preferential treatment or 'connections' and paid for by a 'trip' or 'bribe'. With the exception of the first channel, all transactions have various degrees of illegality and may involve transactions in goods from the public sector.

Our questionnaire makes only a few distinctions in dealing with these purchases. All four categories appear with respect to expenditures on food, but they are lumped together in almost all the other cases. In some of these cases, the nature of the good or service purchase may, however, reveal the type of transaction involved. As mentioned above, in some cases questions on PEX are totally missing.

The basic data on family consumption expenditures by type of expenditure and source of purchase of the sample population are presented in Tables 13 and 14; the latter gives a detailed breakdown of food purchases.

According to Table 13, SP families spend on PEX of all types at least 66.0 rubles or 18.1 percent out of total monthly *consumption* expenditures of 364.5 rubles.* Without 'connections' in food purchases the PEX figures are 57.4 rubles, 15.7 percent. The collective farm market (CFM) sales of 37.7 rubles take the lion's share of all PEX and dominate private food purchases. Of the 1016 families in the sample only 79 did not report any PEX. A total of 723 families purchased some food in CFM and more than half the families reported some PEX other than CFM (food or nonfood). Because of the special position of CFM in PEX, because of its legal status, and because PEX is best reported in food purchases, the following discussion will consider food first and other consumption later.

1. Private Food Purchases

In Table 13 the information on food purchases was obtained from questions on total consumption of food by source of purchase.[†] In Table 14 the total amount is obtained by summing up detailed

* Nonconsumption expenditures are savings and transfers to other families.

[†] Only the questions on alcohol consumption and on expenditures in restaurants were presented separately.

Table 13
MONTHLY CONSUMPTION EXPENDITURES BY TYPE AND SOURCE

	Total Rubles per Family ^a (1)	Number of Families ^b (2)	Private Purchases (rubles per family) ^a (3)	Number of Families ^b (4)	Percent Private Purchase (3) ÷ (1) (5)
(1) Total consumption ^c	364.5	1016	57.4 ^a	926	15.7
(2) Total consumption			66.0 ^b	937	18.1
(3) Food	182.8	1015	51.0	841	27.9
(3a) Food at home	169.8	1015	51.0	841	30.0
(3a1) Collective farm market			37.7	723	22.2
(3a2) Private people			4.7	109	2.8
(3a3) 'Connections'			8.6	160	5.1
(3b) Restaurants	13.0	467	**	**	**
(4) Nonfood consumption	182.1 (109.9) ^d	1016	14.9	612	8.2 (13.6) ^d
(5) Tobacco	5.3	555	**	**	**
(6) Clothing, shoes, apparel	43.0	1007	4.9	232	11.4
(7) Household goods: durables	22.0	626	0.8	31	3.6
(8) Household goods: nondurables and jewelry	9.5	1000	**	**	**
(9) Rent	7.8	850	0.3	33	3.8
(10) Mortgage and utilities	14.0	985	**	**	**
(11) Household repair	2.8	220	1.6	132	57.1
(12) Domestic service ^e	1.3	56	1.3	56	100.0
(13) Transportation	9.9	969	**	**	**
(14) Entertainment and culture	21.8	1015	**	**	**
(15) Vacation	20.8	705	3.7	361	17.8
(16) Education	4.8	306	1.3	54	27.1
(17) Medical services	2.4	479	0.8	128	33.3
(18) Personal services	4.9	691	0.3	50	6.1
(19) Dues and other services	11.4	1000	**	**	**

** Question on private expenditures not asked.

^a Average per family over all families.

^b With positive expenditure in category.

^c In variant (b) private purchases include food purchases from public stores where special 'connections' were used to acquire the goods.

^d Figures in parentheses are total expenditures and private purchases on nonfood consumption in items for which questions on private purchases were asked.

^e Assumed to be entirely private. Includes also 0.2 rubles for work services (typing, driving, secretaries).

Table 14
MONTHLY CONSUMPTION OF FOOD AT HOME BY CATEGORY AND SOURCE

	Total (rubles) ^a	Number of Families ^b	Private Purchases (rubles) ^a	Number of Families ^b	Percent Private
	(1)	(2)	(3)	(4)	(5)
Total food	184.4	1016	45.3	817	24.6
Collective farm market			40.3	738	21.9
Private individuals			5.0	121	2.7
Bread and bread products	11.0	1015	0.03	11	0.3
Potatoes	4.7	994	3.4	612	71.8
Vegetables	12.1	993	8.0	655	65.5
Fruit and melons	27.1	984	15.6	681	57.6
Sugar and sweets	12.6	1003	0	1	0
Milk and milk products	26.9	988	3.2	213	11.9
Butter	0.7	219	0.4	98	56.8
Fats and oils	15.0	1003	0.4	35	2.7
Meat and poultry	35.7	1001	12.0	355	33.7
Sausages and meat preserves	13.0	951	0.1	10	1.0
Fish	3.8	854	0.5	96	14.1
Herring and fish preserves	4.1	896	0.1	19	2.9
Eggs	8.5	992	1.6	184	19.4
Alcoholic beverages	9.2	660	0.01	1	0.1

^a Average expenditure for all 1016 families.

^b Number of families reporting positive expenditures in category.

information on the consumption of many food items as listed there. As can be seen, the figures for total expenditures on food from the two sources are not that dissimilar: 184 rubles in Table 14 and 169.8 (restaurants excepted) in Table 1.* The difference may result from the detailed nature of questioning in the underlying data for Table 14, for this method improves the memory but creates opportunities for double counting as well. Correspondingly, the estimates for CFM purchases are 40.3 rubles and 37.7 rubles, respectively, in both cases about 22 percent of total food purchases. According to the detailed

* It is assumed that in Table 14 the returns refer to consumption at home only, that is without restaurants. If some restaurant consumption is included in Table 14 the difference between the two sources is even narrower.

results of Table 14, CFM purchases concentrate on most fresh food items: fruits, vegetables, and potatoes (about two-thirds of total spending) and in meats and dairy products (between 12 and 46 percent). Fruits and melons, meat and poultry, and vegetables (with potatoes) absorb the bulk of PEX.

One still unsatisfactory result affecting most of the findings and conclusions of this section is our estimate of consumption of fruit and melons. Expenditures on these items are 27.1 rubles per family per month and the corresponding physical quantity is 41.6 kg., about three and a half times the Soviet average according to official data, and thus very unreasonable. We tend to believe that people reported on their consumption during the fruit (summer) season, but we find it very difficult to correct such data on an individual basis. Our ad hoc measure is to assume that fruit consumption is half that reported in our sample, which reduces total fruit consumption from 27.1 to 13.5 rubles and private fruit purchases from 15.6 to 7.8 rubles.*

In addition to CFM purchases, we find that both tables put private purchases of food at around 5 rubles per month, 2.7 to 2.8 percent of the total, and that 'connections' help buy about 8.6 rubles worth of food from public stores (Table 13). Altogether, about a quarter of all home food purchased by the sample population was provided outside of the public sector, some 30 percent of it if connections are counted. Purchasing food from private sellers is very widespread. 841 families reported such purchases, 723 in CFM, and 109 from private people; 160 families reported acquiring foodstuff in public stores through special connections.

In order to move from figures for the sample to figures for the Soviet population, some adjustments must be made to account for those differences between the two populations that are most important in determining the level of private food purchases. The two main variables considered are income and location.

* It would also reduce total food consumption in Table 14 from 184.4 to 170.9 rubles, very close to the figure in Table 13 where no specific questions on fruit are asked. Correspondingly, total private food purchases in Table 14 will go down from 45.3 to 37.5 rubles--below the corresponding figure in Table 13.

Income has an impact on two levels: first as a determinant of the level of consumption of food and its various subcategories. When the consumption of total food is considered, the proportion of private purchases will change with income if such purchases are distributed unevenly among subcategories of food with different income elasticities. Specifically, since PEX is concentrated in the high-income-elasticity items within food (such as meat, fruit, and fresh vegetables, see Table 14), PEX level should be expected to be positively correlated with income just because the proportion of these items in total food consumption is so correlated with income. Secondly, the proportion of PEX *within* each food category is likely to increase as income rises. Food bought privately is considered to be of higher quality, and its acquisition less time consuming and more predictable, than food sold through public outlets. It also costs more. All these attributes should be high-expenditure elastic; thus the hypothesis.

On the supply side the availability of food in collective farm markets varies considerably between locations according to city size and distance from major growing areas.

Specifically, expenditures on food from the major marketing channels were estimated by the following equations:

$$EI_i = a_i + b_i YCR + c_i FS + \sum_j d_{ij} X_j + U_j$$

(B_iEX)

where EI_i are food purchases from the different marketing channels, YCR is corrected income (see above) and EX, total expenditures; FS is family size and X_j are dummy variables for different locations. After a number of experiments we settled for separating Moscow, Leningrad, and Kiev as individual locations and leaving all other observations in a division by republic.* Because of existing errors, the use of YCR as income tends to downbias the true income response and EX to upbias it. The true coefficient is somewhere in between.

* Estonia and Latvia are merged as are all the Central Asian republics, from which there are 23 observations.

At the present time, we are unable to isolate individual prices for goods by sources of purchase, and our estimates are thus not of physical quantities purchased but of total expenditure. The estimated *expenditure* coefficients and elasticities for PEX will underestimate or overestimate the true *income* coefficients and elasticities, depending on whether the corresponding price elasticities are higher or lower than unity. If, however, we assumed that higher PEX prices fully reflect higher quality and better accessibility, it follows that prices do not vary considerably and expenditure and income elasticities are similar. Thus, in our discussion we use income and expenditure elasticities interchangeably. Whenever possible, separate equations were estimated on the basis of data on total food (TF, Table 13) and on aggregated food consumption (AF, Table 14). A selected sample of results of income and FS coefficients and some other estimated statistics are presented in Table 15.* In presenting the findings references are made to other equations as well. The results may be summarized as follows:

a. Expenditures on food, total and from each source, go up with income. An income increase of 1 ruble induces between 16 and 21 kopecks of additional food purchases [line (1),] out of which between 4 and 6 kopecks go to CFM's [lines (3)-(4)]. The implied expenditure elasticities are estimated at between 0.35 and 0.46 for all goods and between 0.39 and 0.62 for purchases in CFM. CFM elasticities are higher than for food purchased in public outlets in each pair of equations using the same type of data and income variable (Column 3). Results similar to these obtained for CFM are found for other private purchases [lines (5)] and purchases through personal connections: in both cases the expenditure elasticities are typically *above* unity.

b. Although larger families spend more on food (income held constant) they do not tend to increase purchases from private channels (except 'private' which includes own subsidiary plot). The coefficients for CFM or 'connections' purchases are always very small, and statistically not different from zero. Here there seem to be two

*Full results can be obtained from the authors.

Table 15

EXPENDITURES ON FOOD (AT HOME) BY TYPE OF PURCHASE:
REGRESSION RESULTS^a

		Coefficients		'Income', ^b Elasticity	Average Propensity to Spend (APS)	\bar{R}^2
		'Income'	Family Size			
		(1)	(2)	(3)	(4)	(5)
(1) Total Food	EXP	0.2135 (17.0311)	22.3981 (10.6128)	0.46	0.46	0.95
	YCR	0.1628 (12.4262)	23.6044 (10.4145)	0.35	0.46	0.89
(2) Public Food	EXP	0.1342 (11.9289)	18.7430 (9.8934)	0.29	0.35	0.87
	YCR	0.1027 (8.9785)	19.4802 (9.8438)	0.29	0.35	0.86
(3) Collective farm (a) ^a	EXP	0.0626 (7.1198)	1.8779 (1.2687)	0.62	0.10	0.49
	YCR	0.0498 (5.6736)	2.1077 (1.3890)	0.49	0.10	0.48
(4) Collective farm (b) ^a	EXP	0.0507 (7.4832)	-0.4778 (-0.4187)	0.54	0.09	0.58
	YCR	0.0368 (5.4238)	-0.0777 (-0.0662)	0.39	0.09	0.57
(5) Private food	EXP	0.0151 (3.9230)	1.7964 (2.7677)	1.21	0.01	0.10
	YCR	0.0095 (2.4795)	2.0063 (3.0283)	0.76	0.01	0.09
(6) Food by 'Connections'	EXP	0.0428 (8.5960)	0.5098 (0.5877)	1.98	0.02	0.07
	YCR	0.0351 (6.9984)	0.5726 (0.6429)	1.62	0.02	0.05

^aAll the equations except (4) and (6) are on the basis of data on Aggregated Food (Table 14). Equations (4) and (6) are on the basis of data on Total Food (Table 13). All the equations except (6) include locational variables (coefficients not shown here) as explained in the text. Figures in parenthesis are t values.

^bAt the average point.

offsetting effects: the per capita income effect pushing private purchases down while family size pushes total food consumption up.

c. There are marked locational differences in the amount of CFM purchases: the lowest levels of such purchases are found in large cities, most notoriously in Moscow and Leningrad (but also to some extent in Kiev). On the other hand, the highest levels are found, in descending order, in Central Asia, the Ukraine (outside of Kiev), and in some equations, in Moldavia and Latvia.* In general, the larger the city and the farther you go, the sharper the decline in CFM purchases. In many cases high levels of CFM purchases are correlated with low levels of purchases from public channels and vice-versa. Again the clearest examples are Moscow and Leningrad with levels of public purchases much above the average; this is the sample's support for the well known fact that Moscow and Leningrad are exceptionally well supplied with food in the public networks as compared with the rest of the country.

We now turn to adjust our SP figures of private food purchases to figures for the entire Soviet urban population. Since average family size is almost the same for the two groups (3.39)--Ofer, Vinokur and Bar-Chaim, 1979, p. 11)--only two adjustments are made: for difference in income level and in residence. As always the adjustments apply only to the urban population of the 7 Western republics but are then extrapolated to the entire urban population of 147.9 million at mid 1973 (Narkhoz, 1973, p. 7). The level of UP monthly family income is estimated here at 298 rubles per month, including private income as estimated from this report.[†] The adjustments are performed by plugging

*The following are deviations from the average CFM purchases in some locations:

Moscow:	-24.8 rubles	Moldavia:	+3.0
Leningrad:	-22.0 rubles	Other Ukraine:	+10.9
Kiev:	-3.6 rubles	Central Asia:	+14.5
Other RSFSR:	+1.9 rubles		

[These figures are from equation (3) EXP in Table 15.]

[†]This estimate is arrived at as follows: total income from public sources is estimated at BR 138 [arrived at independently on the basis of our calculations (Ofer, Vinokur and Bar-Chaim, 1979, pp. 76-78),

UP income level and locational distribution into the relevant equations described above.

According to these adjustments, we estimate CFM expenditures of a Soviet urban family at between 31.7-36.5 rubles per month; when half the expenditures on fruit are deducted the figures range between 26.5-31.3 rubles. In both cases the range is created by estimates based on different equations. These UP figures are lower by between 2 to 6 rubles than those for SP (37.7-40.3 with all fruit and 30.5-33.1 with half fruit) and almost the entire adjustment is due to the income difference. The small net effect of the wide differences in residence between SP and UP is surprising since, as we have seen, CFM sales vary widely with location. An examination of individual locational adjustments show that the small net effect is an outcome of two large offsetting factors: on the one hand, SP is much more heavily concentrated than UP in regions with high CFM sales as in the Ukraine and Moldavia. On the other hand, within RSFSR, SP is much more concentrated than UP in Moscow and Leningrad where CFM sales are minimal and much less so in the rest of the republic where such sales are relatively high.*

In percentage terms, CFM purchases for UP range around 21 percent of all food at-home with all fruit to 20 percent when only half the fruit is included, compared with 21-22 and 18-19 respectively, for SP.

Schroeder's (1976, p. 652) and the CIA's (1975, pp. 3, 4)]. To this we add BR 18.0, which is our estimate of urban private incomes from all sources. Total net urban income is estimated at BR 156 or 298 rubles per family per month (97.9 rubles per capita).

*The geographical distribution of SP and UP is as follows: (in percent)

	RSFSR	Moscow	Leningrad	Other RSFSR	Kiev	Other Ukraine	Bielo Russia
SP	[18.7]	8.6	5.8	4.3	6.4	31.1	4.7
UP	[69.6]	5.8	0.3	60.8	1.5	20.8	3.6
	Lithuania	Latvia	(Estonia)	Moldavia	Central Asia		
SP	4.6		3.9	28.1		2.3	
UP	1.4		2.1	1.0		0.00	(by definition)

Aggregating over the entire urban population, the adjusted CFM figure stands at between 16.6 and 19.1 billion rubles or between BR 13.9-16.4 when only half the fruit is included.* These figures are much higher than those published by the Soviet Union--BR 4.6 for 1973 (Narkhos, 1973, p. 647)--which according to official explanations is arrived at by sampling Kolkhoz markets in 256 cities *all over* the Soviet Union (Sarkisian, 1973, p. 43). Such a wide gap immediately raises questions on the credibility of both figures. A thorough analysis of the gap and its source must await further investigation. But we can make some observations in relation to both figures that may help either to narrow the gap or to explain it:

1. In addition to sales in CFM's, collective farms and individual persons sell some of their produce to special cooperative stores that resell them to the public for a commission at higher-than-official prices. The high prices and quality and the fact that most of these stores are located in the collective farm markets might have induced our interviewees to include purchases in such stores in CFM rather than in cooperative stores. The official figure for commission sales of produce is BR 1.4, so that, together with Kolkhoz farm market sales, the figure that should be compared to our estimates should go up to BR 6.0. On the other hand, part of the CFM sales, about 8.7 percent, goes to institutions (CIA, 1975, p. 40) and thus should be deducted.

2. Official figures published on CFM sales in Moscow indicate that the official national figure is biased downwards. According to these figures, in 1973, CFM sales in Moscow were at least 215 million rubles and probably MR 238.[†] Extrapolating those figures for the entire urban population gives estimates of between BR 4.3-4.8, most probably higher than the official national figure. This is very

*The extrapolation to the entire urban population, beyond the 7 Western republics is made on the assumption of similar behavior. It is clearly an underestimate for the central Asian republics.

[†]The first figure is based on data from *Moscow V Tsifrakh*, 1971-1977, pp. 100, 102. Figures for 1973 are based on quantities for that year and ruble volumes for 1970 and 1975. The figure of MR 238 is larger by 10.7 percent which is, according to SP, the volume of CFM in Moscow not covered by the items included in the official figures.

unlikely in view of the well established fact that CFM sales in Moscow are much below the urban average, a fact firmly re-established by our findings.

3. A comparison of our (SP) CFM purchases with the official figures show that *for Moscow* the SP estimates are not nearly so much higher, if at all, than the official figures; but when total SP figures are compared with the official figures for all UP, the gap is wide. Following are some comparative estimates for a comparable list of products (in millions of rubles for 1973):

	With All Fruit Included	With Half Fruit Included	With No Fruit
Official data	215	--	130
Official data plus* commission sales	280	--	170
SP unadjusted	490	366	241
SP adjusted for income [†]			
(a)	361	259	161
(b)	420	311	205

* Assuming that the ratio between CFM and commission sales in Moscow is the same as the national average.

[†] (a) is estimated from a regression on total CFM sales, and (b) from individual regression for the main items sold in CFM. In both cases it is assumed that the income *differences* between SP and UP Moscow families are as in the entire sample.

(As mentioned above these figures include only about 90 percent of the turnover of CFM so that total CFM purchases are accordingly larger.) As we see, SP adjusted figures range just between about the official figures (with commission sales) to 50 percent higher only if all SP fruit is included. The corresponding differences on the national level are, as we have seen, at least twice as large. The intermediate conclusion is that either the Soviet official national figure is very heavily weighted by Moscow (and Leningrad, etc.), thus understating the true figure, and/or that there is a flaw in our reweighting scheme.

4. Such a flaw might indeed be caused by the fact that about 60 percent of UP (in the 7 Western republics) are represented by only 45

families in SP and a small error in our estimate of CFM sales in such a vast area may greatly affect our results. CFM sales in RSFSR outside of Moscow and Leningrad are quite high, thus the possible error. It should however be mentioned that even when we take RSFSR as one unit--thus imposing the low CFM figures of Moscow and Leningrad on the entire republic--our estimated figure for CFM goes down only to between BR 9.6 and 13.6, still at least more than 50 percent above the official figure. We consider this weighting system as one that biases the true estimate downward.

A temporary conclusion is therefore that the Soviet official CFM figures are very likely understated by a least a third and possibly one half of their true value. More study is needed to determine the real size of CFM and the sources of the difference between this real estimate and the official figures: price or quantity differences.

The adjusted UP figures for private purchases of food (other than CFM) are estimated by the various equations at between 1.5 and 4.7 rubles per family per month or BR 0.8-2.5 annually for the entire population (the corresponding SP figures are 4.7-5.0 rubles and BR 2.5-2.6 respectively). Purchases from public stores but through the use of special connections add another 4.4-5.2 rubles per family per month or BR 2.3-2.7 annually for the entire urban population (SP figures are 8.6 rubles or BR 4.5 respectively).

In relative terms, CFM purchases consist of at least 12-14 percent of total home food purchases of the urban population but the proportion may be as high as 20 percent. Together with private purchases (1.1-2.8 percent of total food) and 'connections' (2.6-2.8 percent) the total proportion of food bought outside the official channels ranges from a minimum of 16 percent to possibly 25 percent of the total compared with 30 percent in SP.

2. Nonfood Private Purchases and 'Connections'

Of total nonfood purchases by SP families of 182.1 rubles per month (Table 13), 14.9 rubles worth of goods and services were purchased privately. This constitutes 8.2 percent of all such purchases. But when items for which no questions on PEX were asked are put aside,

the relative share of PEX rises to 13.6 percent (see line 4, Table 13). Examining the items where PEX data are missing--private transport (i.e., gasoline, car repair, etc.) and nondurable household goods (including books and jewelry), it seems that the actual share for SP is somewhere between 8 and 14 percent and very likely closer to the latter.

Among the items with PEX data, we find that 11.4 percent of all clothing, shoes, and apparel (and their repair) are sold privately, but only 3.6 percent of the purchase and repair cost of furniture and appliances are PEX, which seems too low.

Higher proportions of private expenditures are found in services: 57.1 percent for household repair, painting, etc.; 17.8 for vacation services; about 30 percent for all paid-for medical and educational services; but again only 6.1 percent for personal services. With a few exceptions, the picture portrayed is very similar to what one gathers from anecdotal evidence and seems, whenever comparisons can be made, not inconsistent with evidence on the income side of the present survey (see below).

In Table 16 [columns (1)-(2)] we first present the expenditure elasticities derived from equations for the nonfood categories, equations which are structurally similar to the food equations but without the location variables. Next the table shows our estimate of private purchase of nonfood items by a family of UP [column (3)] and by the entire Soviet urban population [column (4)]--adjusted for SP-UP differences in income levels (they have the same average family sizes). For comparison and consideration, the unadjusted (SP) figures are also shown [columns (5) and (6)]. Given the relatively weak explanatory power of some of the equations (not shown) as well as the other weaknesses of the data, the figures should be considered as rough estimates.

Due to the high income elasticities estimated by the equations, the adjusted figures for total nonfood private consumption for UP are much lower than the original SP figures (shown in Table 13). In some equations, the SP figure is reduced by two-thirds or more. For all nonfood items, the adjusted estimate is put at 6.9 to 9.2 rubles per family per month (depending on the income concept used), 3.6-4.8 BR

Table 16
EXPENDITURE ELASTICITIES OF NONFOOD EXPENDITURE CATEGORIES BY SOURCE

		Private Expenditures of the Urban Population						
		Expenditure and Income Elasticities ^a		Adjusted ^b		Unadjusted		
		All Expenditures in Category (1)	Private Expenditures in Category (2)	Family per Month (rubles) (3)	UP Annual ^c (million rubles) (4)	Family per Month (5)	UP Annual ^c (million rubles) (6)	
(1)	Nonfood (All)	EXP	1.20	2.11	6.95	3,639	14.94	7,801
		YCR	0.86	1.49	9.20	4,817		
(2)	Clothing	EXP	1.21	2.30	2.04	1,068	4.90	2,565
		YCR	0.95	1.47	3.05	1,596		
(3)	House repair	EXP	2.67	2.58	0.55	288	1.59	838
		YCR	1.32	1.15	1.12	586		
(4)	Domestic services	EXP	--	3.27	0.22	115	1.28	681
		YCR	--	2.32	0.53	277		
(5)	Vacation	EXP	1.30	1.22	2.54	1,330	3.60	1,937
		YCR	1.05	1.24	2.51	1,314		
(6)	Education	EXP	0.74	2.13	0.59	309	1.28	681
		YCR	0.33	1.54	0.77	403		
(7)	Medical services	EXP	1.04	1.29	0.54	283	0.80	418
		YCR	0.63	0.63	0.67	351		
(8)	Personal services	EXP	0.71	2.09	0.12	63	0.26	157
		YCR	0.47	2.02	0.12	63		
(9)	Others	EXP	--	--	--	--	1.15	576
		YCR	--	--	--	--		

^aBased on linear regressions. Elasticities are at average points. Columns do not add exactly due to rounding.

^bFor income differences. [For SP - EXP = 399.1 rubles and YCR = 397.7 rubles as compared with 298 rubles for UP.] Family size is 3.39, the same for SP and UP.

^cTo move from 'per family per month' to 'UP annual' we divide the former by 3.39 then multiply by 12 months and by 147.9 million--the size of the Soviet urban population.

for the entire UP per year. This should be compared with an unadjusted figure of 7.8 BR. If, however, we account for missing information on private purchases and assume that it behaves like those purchases for which information is available, the adjusted UP figure may increase to 6-8 BR as a maximum and the unadjusted figure to 13 BR.*

When adjusted, total nonfood private purchases range from 5.5 to 6.5 percent of total nonfood purchases. When adjusting for unreported private purchase, the figures can rise to about 8 to 10.5 percent, respectively.†

There is some additional information on purchases of durable goods and appliances by 'connections'. According to it, which is very likely an underestimate, connections were used between 3.5 and 4 percent for all purchases of washing machines and TV sets, up to 10 percent for pianos and furniture, and 14 percent for refrigerators. It seems that this particular form of private effort must account for about 5 percent of the volume of goods purchased in public stores. By inference, the proportion for services should be higher.

* In both cases, the maximum figure assumes that PEX consists of 13.6 percent of all nonfood purchases of 24.8 rubles.

† Adjusted nonfood purchases per family of UP is estimated at 125.7-142.6 rubles per month.

IV. A CONCLUDING NOTE

What are the implications of this report for our understanding of the working and economic potential of the Soviet Union?

It was found that while the volume of private activity in the urban consumer sector is significant, its impact on our assessment of Soviet GNP is rather modest--at most it adds 3 to 4 percent to existing estimates.*

The urban private sector is a significant element of the household economy on the income as well as the expenditure side. Around ten percent and maybe up to 12 percent of total incomes are derived privately and about 18 percent of all consumption expenditures are made to private people. On this basis it should first be stated that, despite this considerable volume of private transactions, the Soviet urban citizen is mainly dependent on the public sector for his income and consumption needs.[†] However, consideration of opportunities for private gain or private purchase is an essential element of the economy of almost every urban household in decisions on work and income and on level of living. As an incremental and more flexible source of income, private earnings play an even more important role in family decision processes than its relative share in total income would indicate. Likewise, in many cases private purchases bridge part of the gap between the provisions of basic needs, as determined by the planners and in line with their austere and unfulfilled standards, and the higher standards and quality of life expected by the household.

Such a significant private sector clearly testifies to the dissatisfaction of the population with the level, quality, and variety of consumer goods and services supplied by the public sector, as well as with the supply arrangements. Many students of the Soviet economy see the large volume of private activity as one manifestation of a

*The present study cannot assess the effect of private incomes on rate of growth of GNP.

†Even more so when we add to both income and consumption education, like most education and health, are provided free.

repressed inflation that they claim exists in the Soviet Union. If the meaning of repressed inflation is that people look for, and find, ways to improve their standard of living above what is publicly provided by earning and buying privately, then this is obviously the case. If it means that there are shortages of *specific* goods and services or that their supply is so badly organized that people are willing to pay more to acquire them privately, then it is also true. But the existence of a private sector does not necessarily mean that people receive more money from the public sector than they can spend on public sector goods, and save voluntarily. This is a narrower but, in our view, the right definition of repressed inflation. Assume for a moment that this is not the case and that people are able and willing and indeed do spend all their income on goods and services supplied by the public sector. This should not prevent them from creating a private sector of any size in which the amount of income generated is equal to the amount of income spent. All it takes is an increase in the velocity of money or the development of substitutes for official money. The demand for private goods and services could result not from surplus income but from dissatisfaction with the standard of living and the availability of opportunities to raise it through extra efforts of various kinds including extra work for high pay. To be sure, it is not claimed here that there is no repressed inflation in the Soviet Union, but that the mere existence of a private sector per se does not prove that repressed inflation exists.

It is very likely, on the basis of revealed preference, that private activity raises the level of welfare of the average household. However, this increase in welfare must be less in some sense than is implied in the relative share of the private sector. As we have seen, at least part of the transactions of the private sector are with goods produced in the public sector or labor paid by it and, as we assumed, paid for by the purchaser of public goods and services. This segment of the volume of private activity has a redistribution effect of unknown welfare impact, but it does not create a larger volume of goods and services.

The existence of private earnings and their uneven distribution among the various occupations and branches of the economy clearly disrupts the functioning of the allocation and incentive intentions built into the official wage structure and bonus payments. Activities or jobs that provide ampler possibilities for private gain may attract more people than the official wage intended, and vice-versa; if such an activity is a low priority one and thus intentionally pays a low official wage, the urge for private gain will grow even more. There is quite a large body of evidence that people prefer jobs with private earnings potential in trade, construction, and services. At least one writer points out that this situation makes it more difficult for the authorities to recruit qualified scientists and skilled workers for military R&D and production enterprises such people prefer to work in parallel civilian jobs. The nature of production and the secrecy and security measures in military production diminish opportunities for private gain (Agurski and Adomeit (1977), pp. 31, 39-40).

Opportunities for private gain compete also, of course, with bonus payments and premiums--either directly when there is a choice between the two, or indirectly when more money can be made by putting extra effort into private rather than bonus earning activities. The survey does not contain information on how the authorities react to these problems. Obviously they can internalize whatever information they have on private gain into the official wage and bonus structure. They may intentionally pay low wages to trade workers, accounting for the expected private income just as any restaurant owner in the West takes into account tips paid to waiters. Or they can compensate military employees with other privileges unavailable to most civilian workers. The problem can thus be mitigated but hardly solved: private earnings cannot be planned and the action-reaction game of private vs. public incomes may be an unstable or even an exploding one.

This brings up the issue of the attitude of the authorities towards the entire private sector phenomenon. There are not new answers in the survey; the extent, spread, and variety of activities that characterize the private sector seem to imply an ambivalent approach by the authorities similar to that demonstrated towards the private

agricultural plots. The private sector makes a positive contribution as long as it elicits more effort from the population, because it satisfies needs that the planning system is very inefficient in supplying and raises the general morale of the population. It must be checked, however, so that it will encroach as little as possible on the production capacity of the public sector. The translation of this attitude into a set of policy measures is complex, and the result is the same zigzag of restrictive periods followed by more permissive ones, as observed in the case of the private plot. In the long run, the patterns of private activity could be used by the authorities to improve the planning and production of consumer goods and services. If one has to judge by past experience, this is not the path likely to be followed.

Appendix

Table A.1

ENGAGEMENT IN EXTRA WORK: REGRESSION RESULTS

	Private Work (EW1)	Public Jobs (EW2)	Overtime (EW3)	Extra Work (EW)
Constant	-1.3785 (-1.4288)	-4.8753 (-5.6026)	-3.3269 (-2.8206)	-2.2372 (-3.3206)
Sex	1.3287 (5.6910)	1.5952 (7.0167)	1.3742 (4.0939)	1.6654 (9.7897)
Regular wage (RW)	-0.0048 (-3.0241)	-0.0016 (-1.4068)	-0.0017 (-0.9572)	-0.0021 (-2.2503)
Regular hours (RH)	-0.0581 (-3.3404)	-0.1020 (-0.6596)	-0.0621 (-3.4387)	-0.0416 (-3.4080)
YR _i	0.0007 (1.1933)	0.0001 (0.1848)	-0.0008 (-0.9708)	0.0038 (9.1669)
Education (years) (ED)	0.0465 (1.3059)	0.0803 (2.3649)	-0.0250 (-0.5052)	0.0380 (1.4756)
Family Size (FS)	-0.0160 (-0.1595)	0.2299 (2.5541)	0.4317 (3.3695)	-0.0515 (-0.7431)
Moscow	0.6975 (2.4556)	0.1898 (0.7206)	0.0912 (0.2084)	0.1359 (0.6331)
R ²	0.1107	0.1233	-1.2982	0.1892
<u>OCCPi: White-Collar</u>				
Technicians	-1.0866 (-1.7377)	-0.4877 (-1.1311)	-2.4132 (-1.0591)	-0.8308 (-2.2569)
Doctors	-0.2653 (-0.5420)	0.3510 (0.9104)	811.65 (25.792)	1.4406 (5.2316)
Dentists	1.9950 (3.9523)	-0.1451 (-0.1846)	2.0768 (2.7233)	1.4609 (2.9328)
Nurses	1.3665 (2.9370)	-0.8632 (-0.8264)	3.4869 (6.1498)	1.5905 (4.5378)
Medical: others	-0.0522 (-0.0664)	1.0898 (1.9801)	0.7224 (0.6368)	0.5353 (1.0827)
Education	0.0302 (0.0917)	0.7850 (3.1586)	1.7996 (3.8647)	0.6673 (3.1439)
Public Administration	-1.1773 (-1.8782)	0.2379 (0.6960)	-0.1163 (-0.1453)	-0.4663 (-1.4663)
Trade	-0.9231 (-1.2170)	-0.7970 (-1.2729)	-0.4016 (-0.3710)	-1.4916 (-2.6934)
Communal services	0.5896 (0.7213)	-9.7641 (-0.1461)	-2.6978 (-0.4177)	-0.9173 (-1.0398)
<u>OCCPi: Blue-Collar</u>				
Heavy industry (machine bldg.)	0.1688 (0.4212)	0.0565 (0.1572)	0.0696 (0.1060)	-0.1045 (-0.3538)
Wood, textile, leather and shoes	1.3311 (3.0568)	-1.2071 (-1.5526)	-0.7511 (-0.6714)	0.3493 (0.9820)
Food and other light industry	-1.0618 (-1.0038)	-0.5522 (-0.7127)	0.5746 (0.6392)	-0.3944 (-0.7452)
Construction and constr. material	-0.4498 (-0.4338)	0.6227 (1.0233)	-3.0502 (-0.5629)	1.7611 (3.8955)
Transportation	0.9199 (1.7168)	-0.6759 (-0.8763)	1.5758 (2.2880)	0.6192 (1.4810)
Trade	-1.5823 (-1.5070)	-1.6220 (-1.5522)	-0.4224 (-0.3839)	-1.4726 (-2.4101)
Communal services	1.4210 (3.0741)	-0.2689 (-0.4078)	-0.1975 (-0.1758)	0.6842 (1.7326)

Figures in parenthesis are t values.

* All the equations include variables for occupations.

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